

AIR

modeller

1
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Going Gustav

With Hasegawa's G14





Welcome to the first issue of AIR Modeller magazine.

There are many people who are directly responsible for the conception and development of this publication. They are the numerous individuals who approached us in one form or another to suggest that a magazine along the lines of AFV Modeller with a military aviation focus would be worthwhile and might be well received. We eventually decided that it had to be worth a go and this is the result-we hope that it meets with your approval, and we'd like to thank you for the suggestions and encouragement. To those of you who may not be familiar with AFV Modeller, our

approach is pretty straightforward we try to present the work of the best modellers in an exciting and inspiring format - this is a visual hobby and for us pictures are paramount and we hope this will inspire and motivate the reader.

This is not a review magazine, and we aren't bothered if we don't get the latest breaking news or new release. Other publications and the internet already do a far better job with that sort of thing than we ever could-simply by the nature of being a bi-monthly magazine. We'll concentrate to getting stuck in to building model aircraft old and new.

We're not in the habit of having lengthy (or even short) editorials since to be honest we can't really think of much to say that anyone might be the least bit interested in so we'll close this one by saying a quick but heartfelt word of thanks to the many individuals who have helped us in one way or another to get this off the ground.

So-time to roll up the sleeves and get into it-we hope you enjoy reading AIR Modeller. If you would like to see your work featured in future issues and you think its good enough then please make contact with us.

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At this scale there is no escaping the very smooth finish of the big Hasegawa kits. Now Model Design Construction (MDC) have come up with a simple but effective rivet simulation tool leaving me no option but to roll up my sleeves and start rivet counting. It is undeniably tedious but the results speak for themselves...

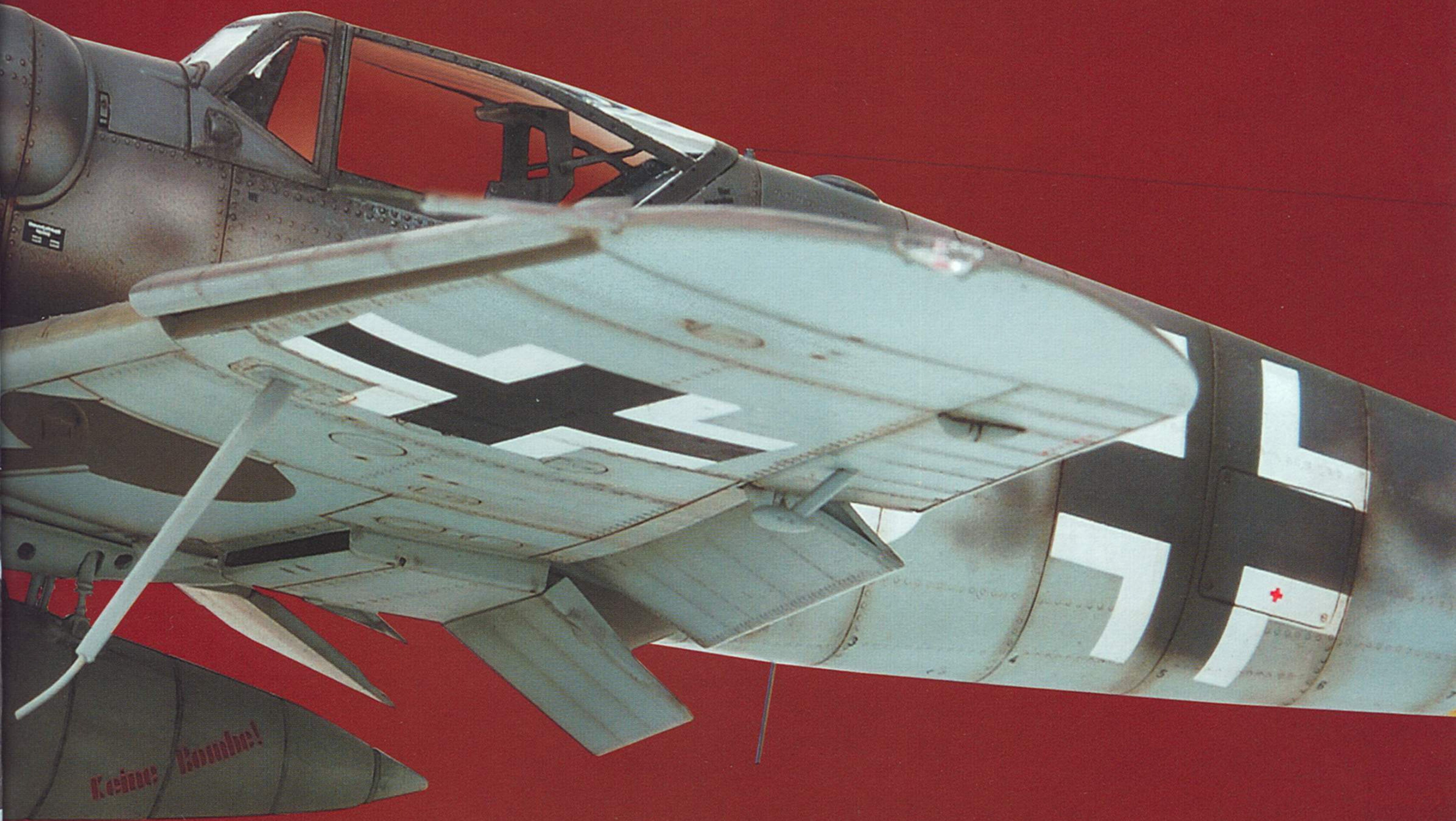
G Spot

1:32

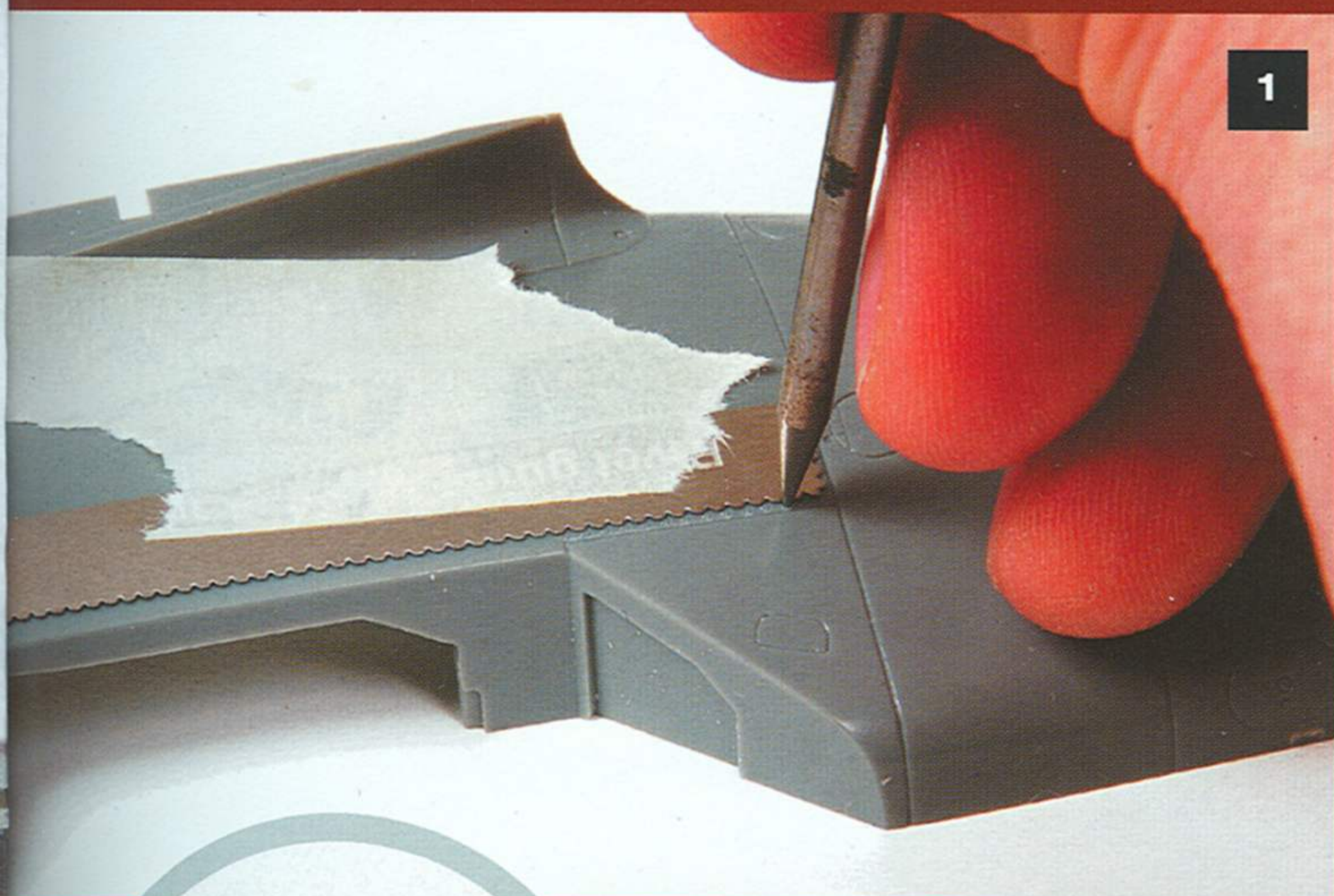
Me109 G14

Joining the dots on the
Hasegawa kit by David Parker

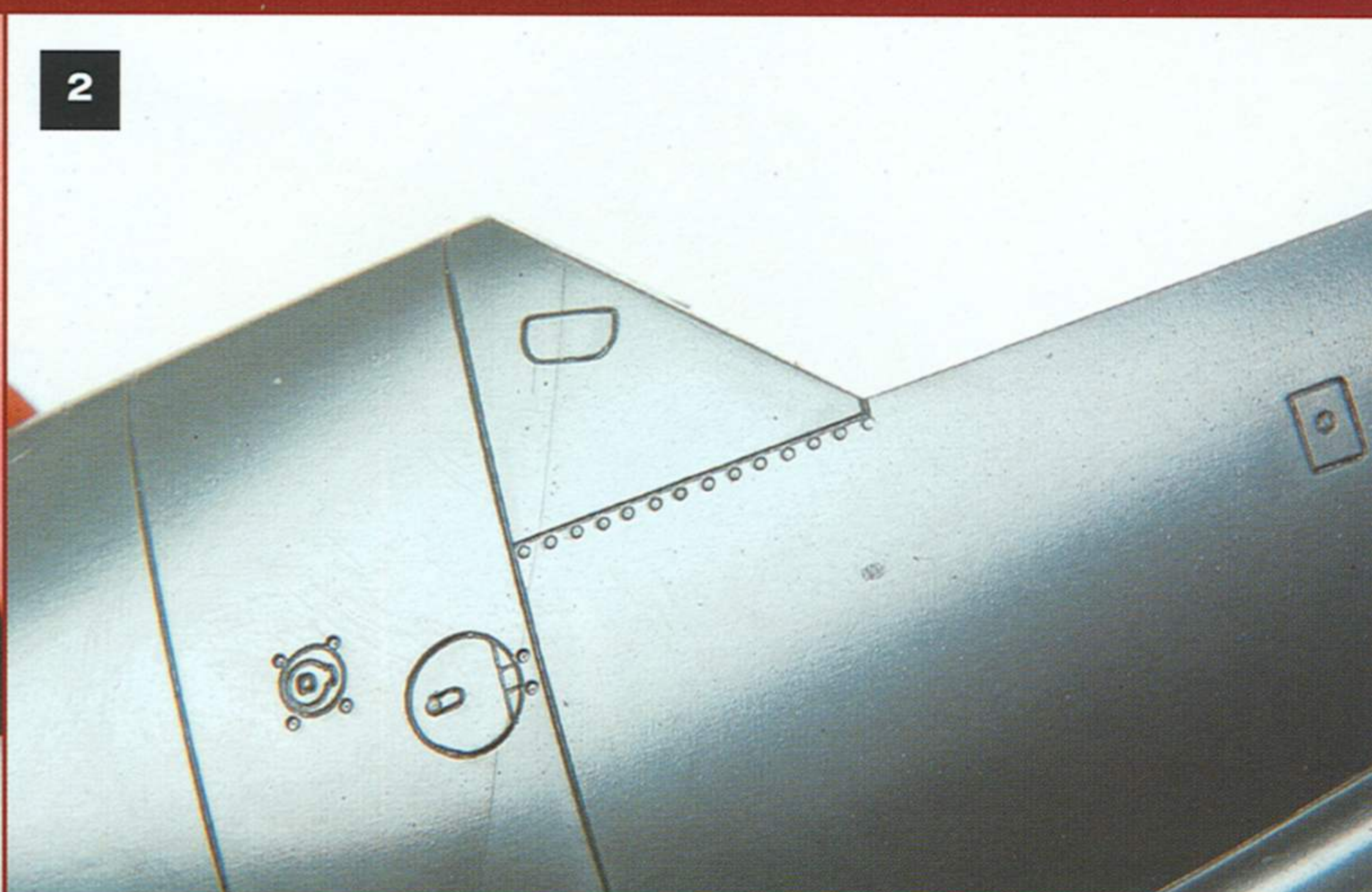








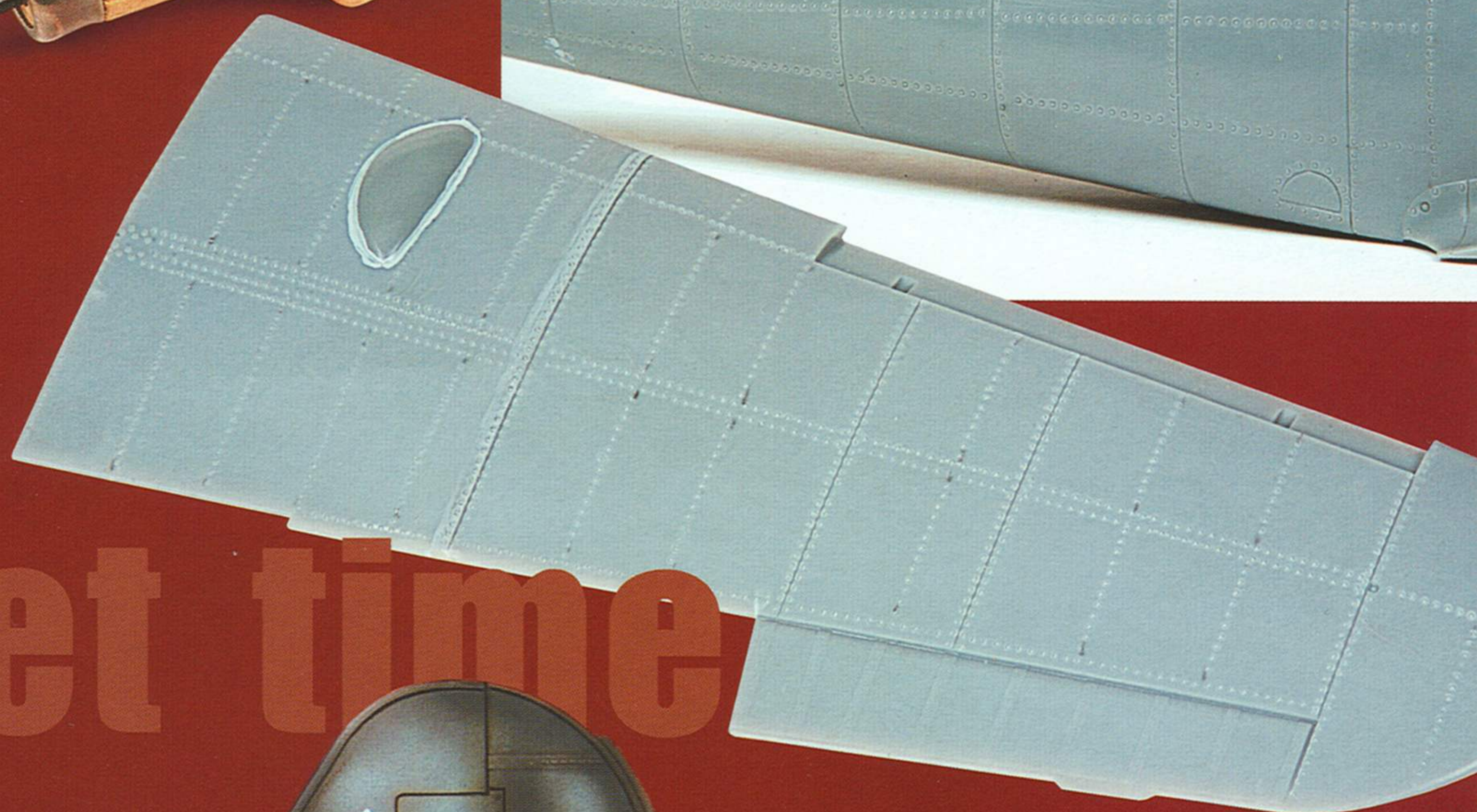
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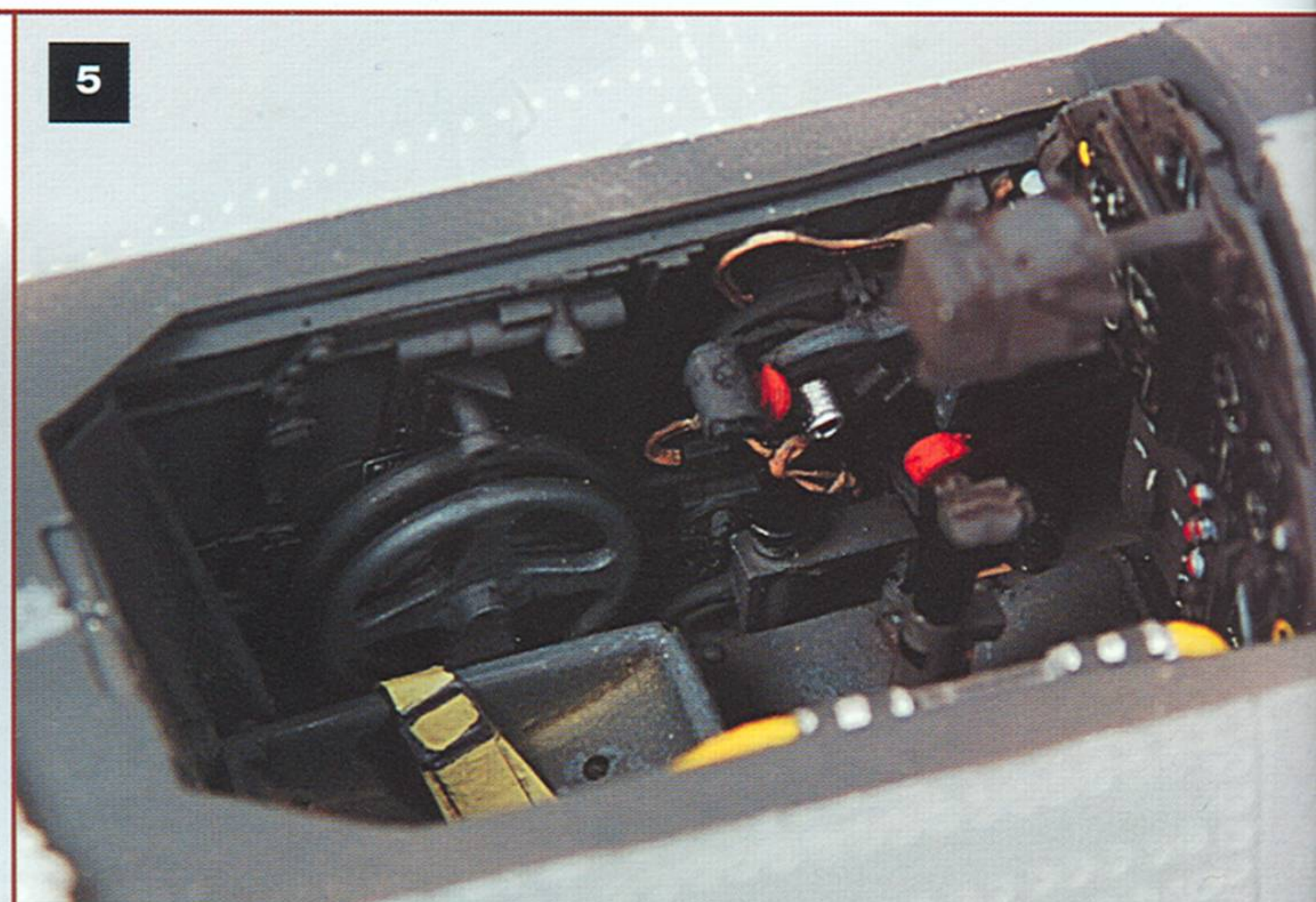
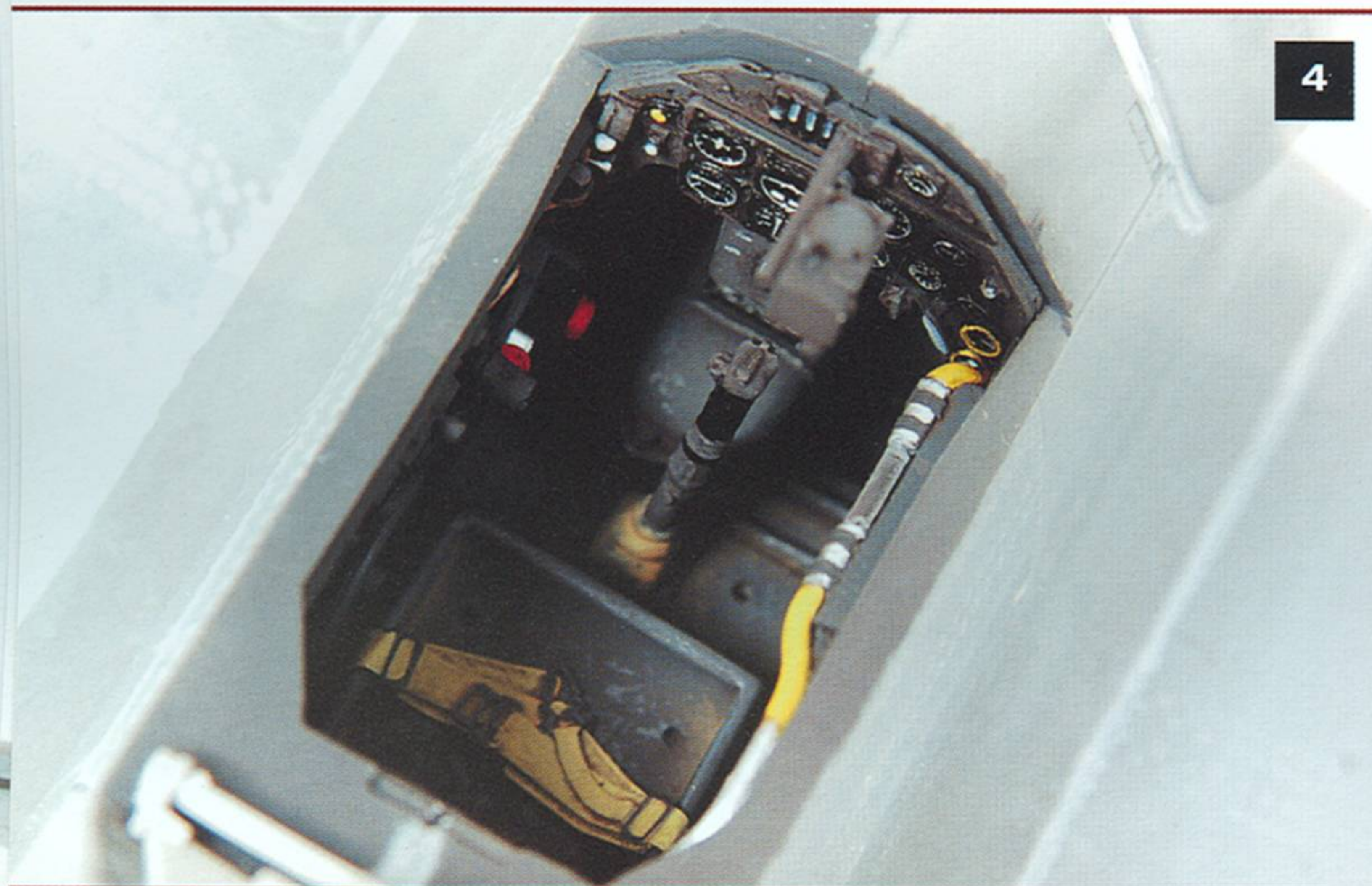


Rivet time



Photos 1 to 3

The first job before assembly began was to apply the rivet detail. The MDC Rivet tool was used to apply rivets to the fuselage and upper surfaces. MDC supply etched guides to help keep a regular spacing and these were taped in position. In certain areas the guides simply will not follow the contours and the only choice is to apply them freehand. In photo 2 The tool is pressed into the plastic leaving a clean circular imprint - 14 down only another 20,000 to go! Mistakes are inevitable but these can easily be filled with Mr Surfacer and the rivets reapplied.



Cockpit

6



Photos 4 to 6

The kit cockpit is just about acceptable with the canopy closed but I chose to replace it with the MDC resin detail set which is a huge improvement. The cockpit was painted mostly in enamels with some acrylics and the MDC decals were used for the dials. Installing the cockpit proved troublesome requiring slots to be cut in the side walls to fit the instrument panel. The etched brass seatbelt straps were fitted prior to installation.

Photos 7 to 8

The MG bulges were fitted and moved forward so that they did not foul the latch positioned just behind them. The joint was faired in with several coats of Mr Surfacer and on the right hand side the air intake was drilled out. The plasticard 'tent' taped over the cockpit is to protect the gunsight which would otherwise have inevitably been damaged.

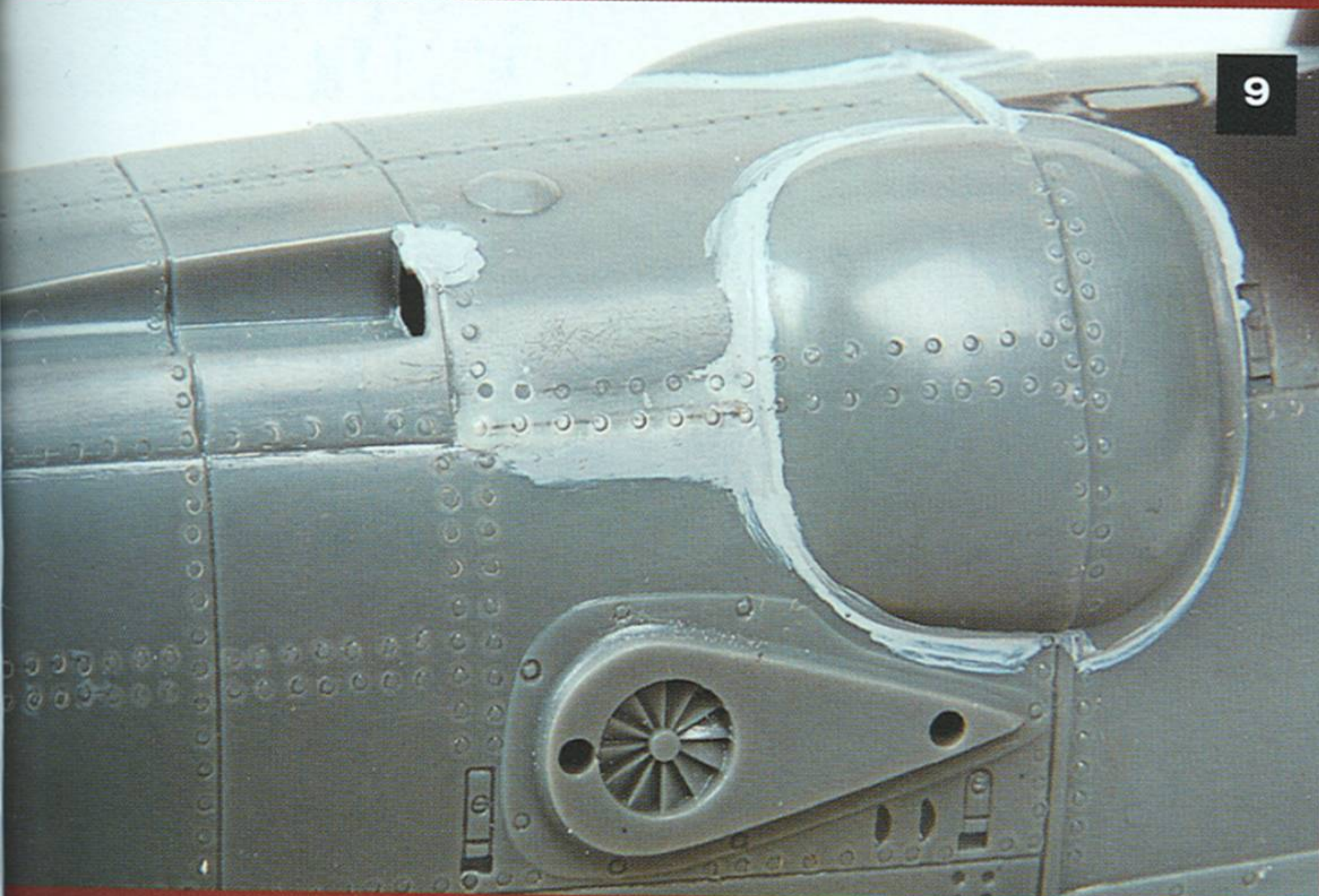
Photo 9

The joint line between the bulge and the MG trough must be filled and faired in. Note the filler on the top lip of the trough where I pushed too hard with the rivet tool and punctured the surface - curse!

Photo 10

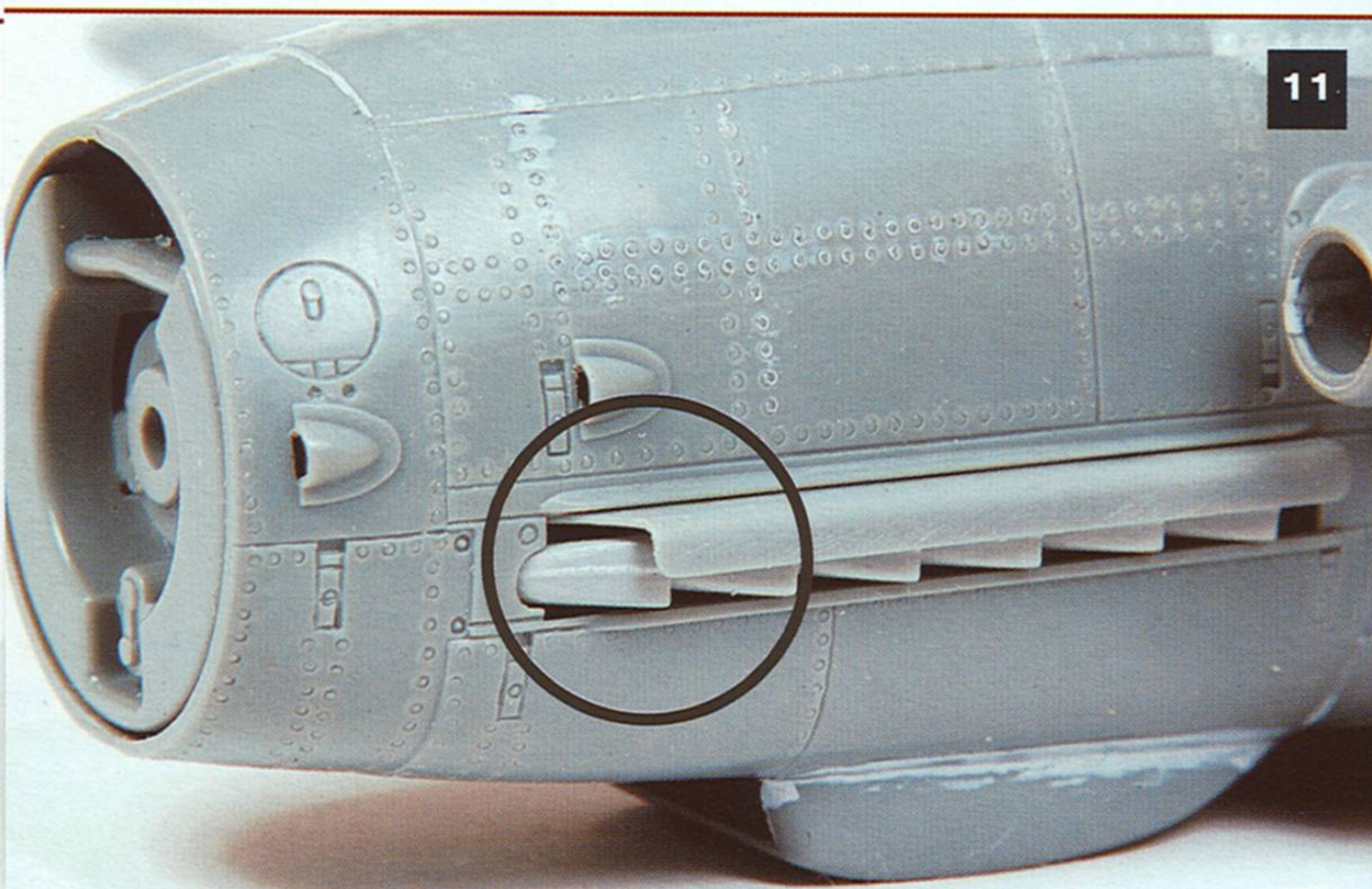
The moulded on brake cables on the undercarriage legs were replaced with wire versions.

9

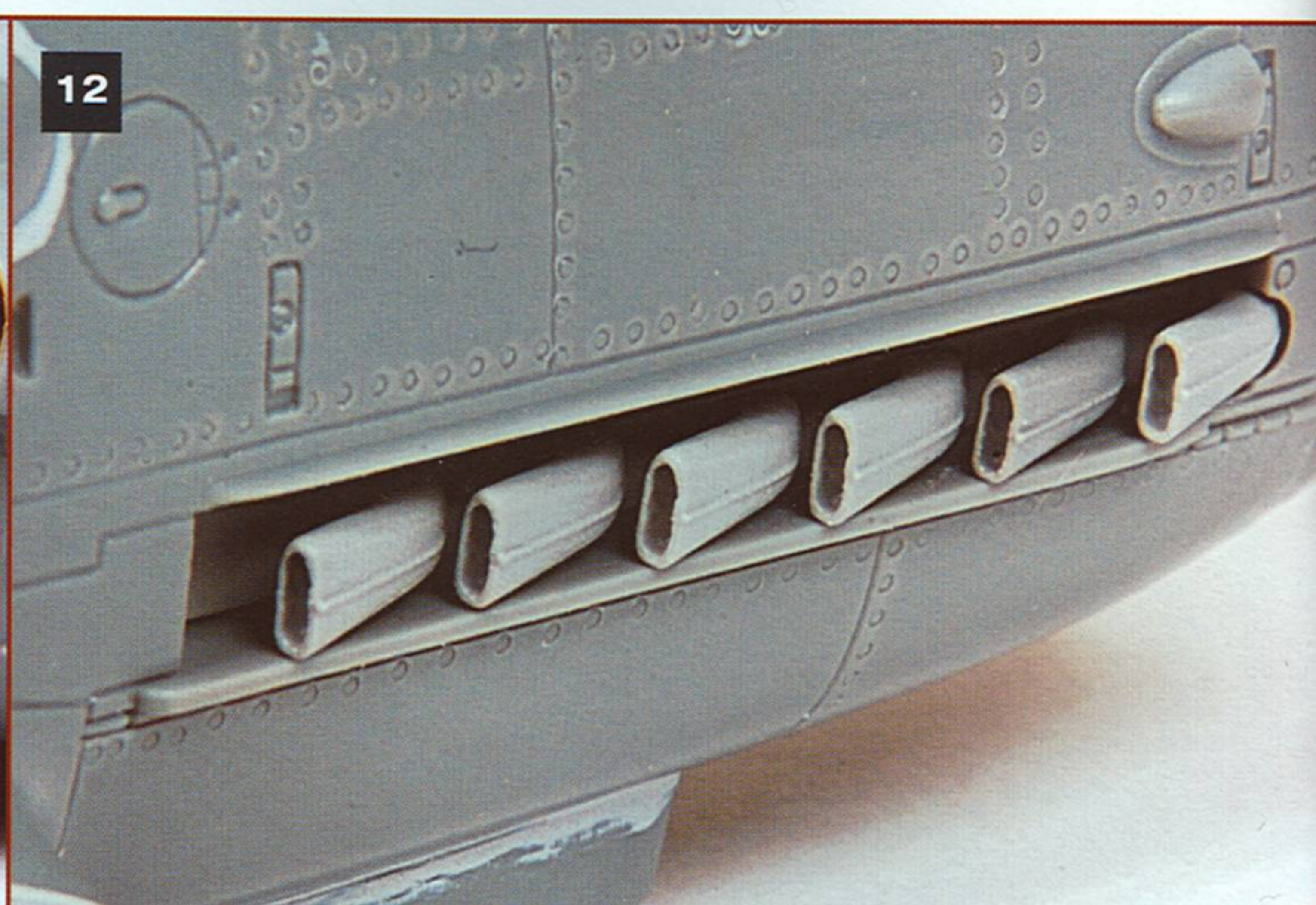


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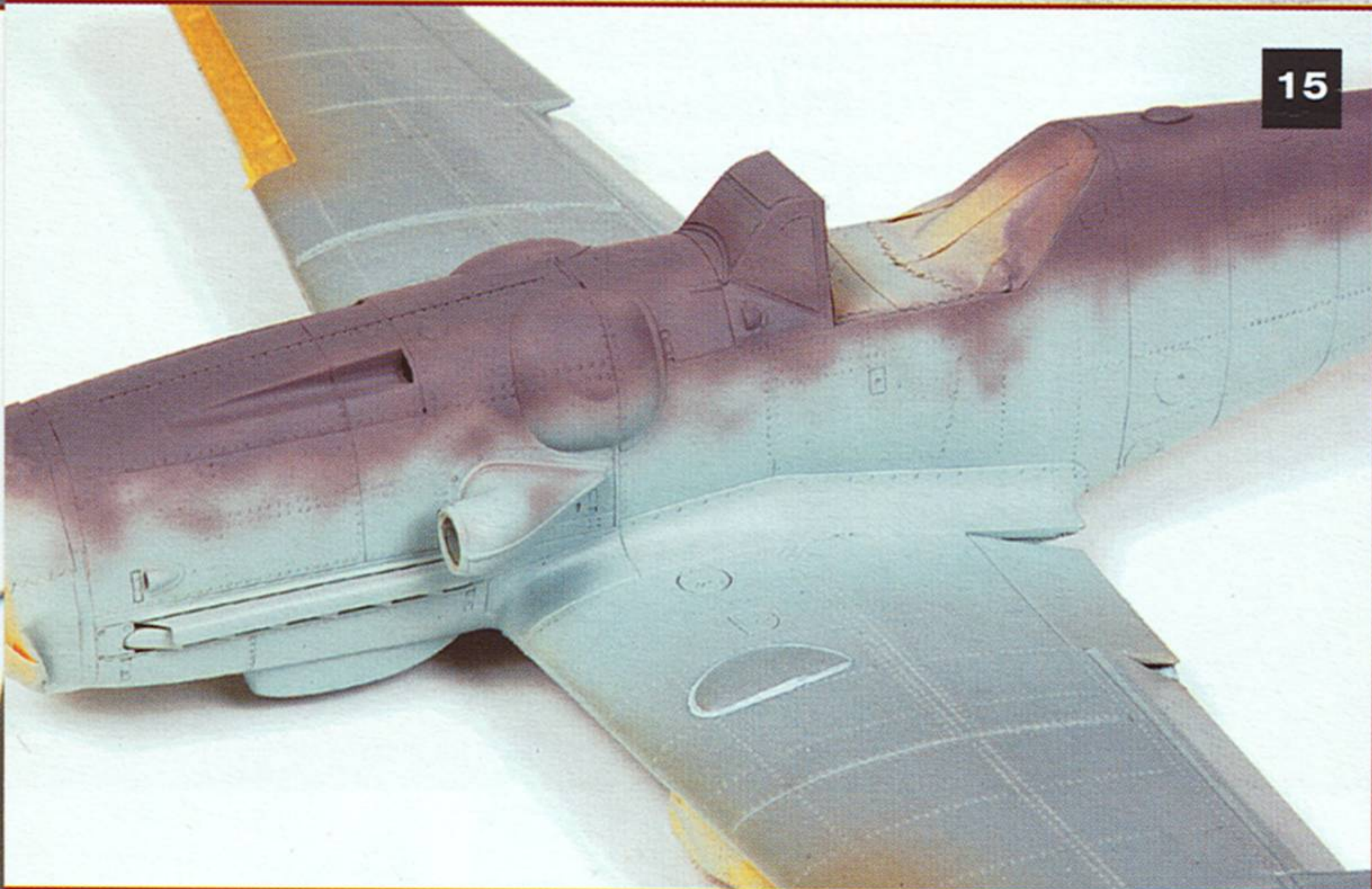
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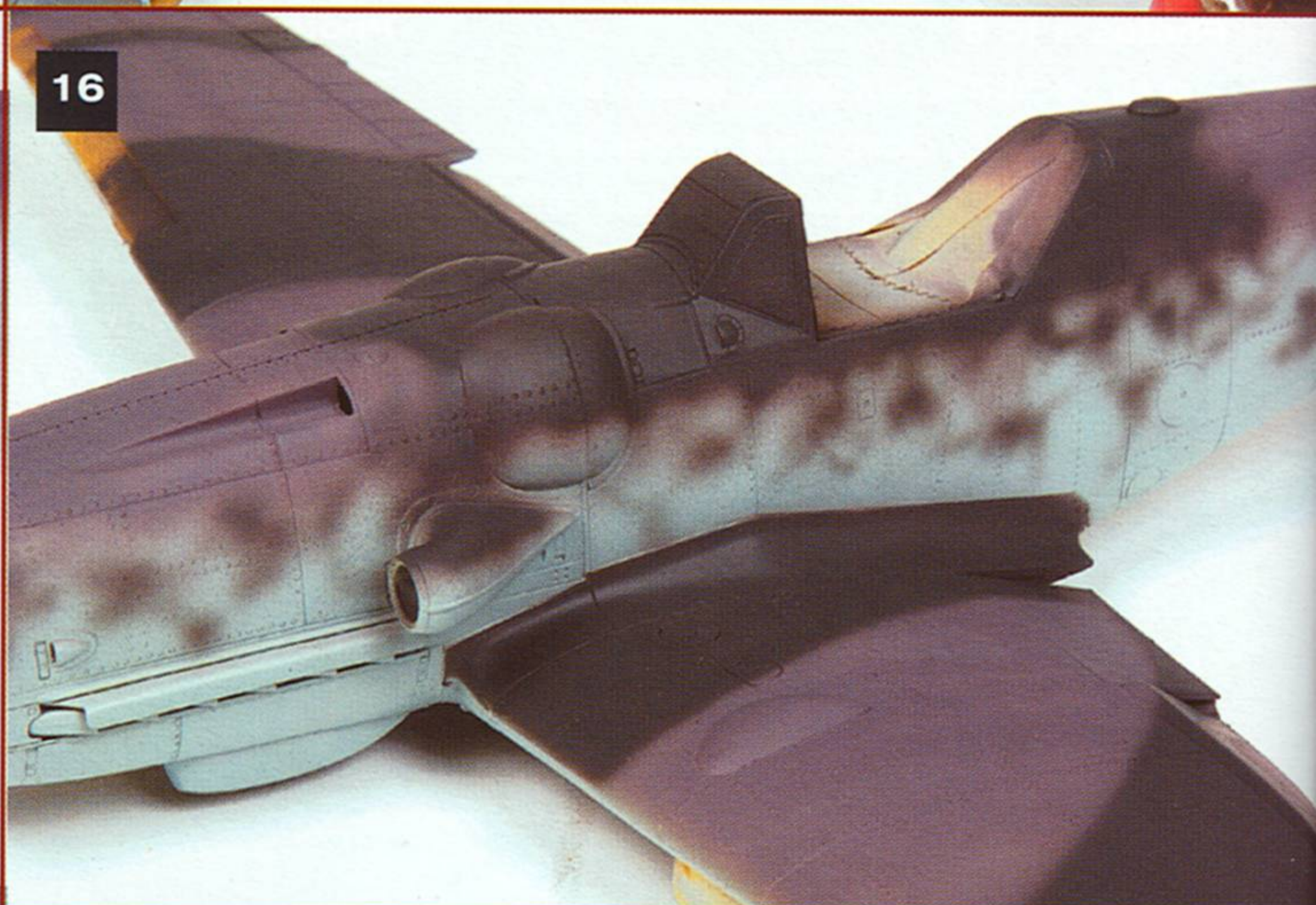
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16

Photos 11 to 12

The exhausts were replaced by the MDC versions which saves a lot of work in drilling them out. The kit exhaust fairings were sanded down to a scale thickness.

Photo 13

Prior to masking the canopy was polished using Gunze Superfine polishing compound and the Gunze polishing cloths which works really effectively.

Photos 14 to 16

Painting begins using Gunze Colour acrylics with the yellow bands being applied first. This was my first time with the Gunze Colour and am a complete convert.

Photos 17 to 18

The panel lines are picked out using a very diluted black Valejo acrylic

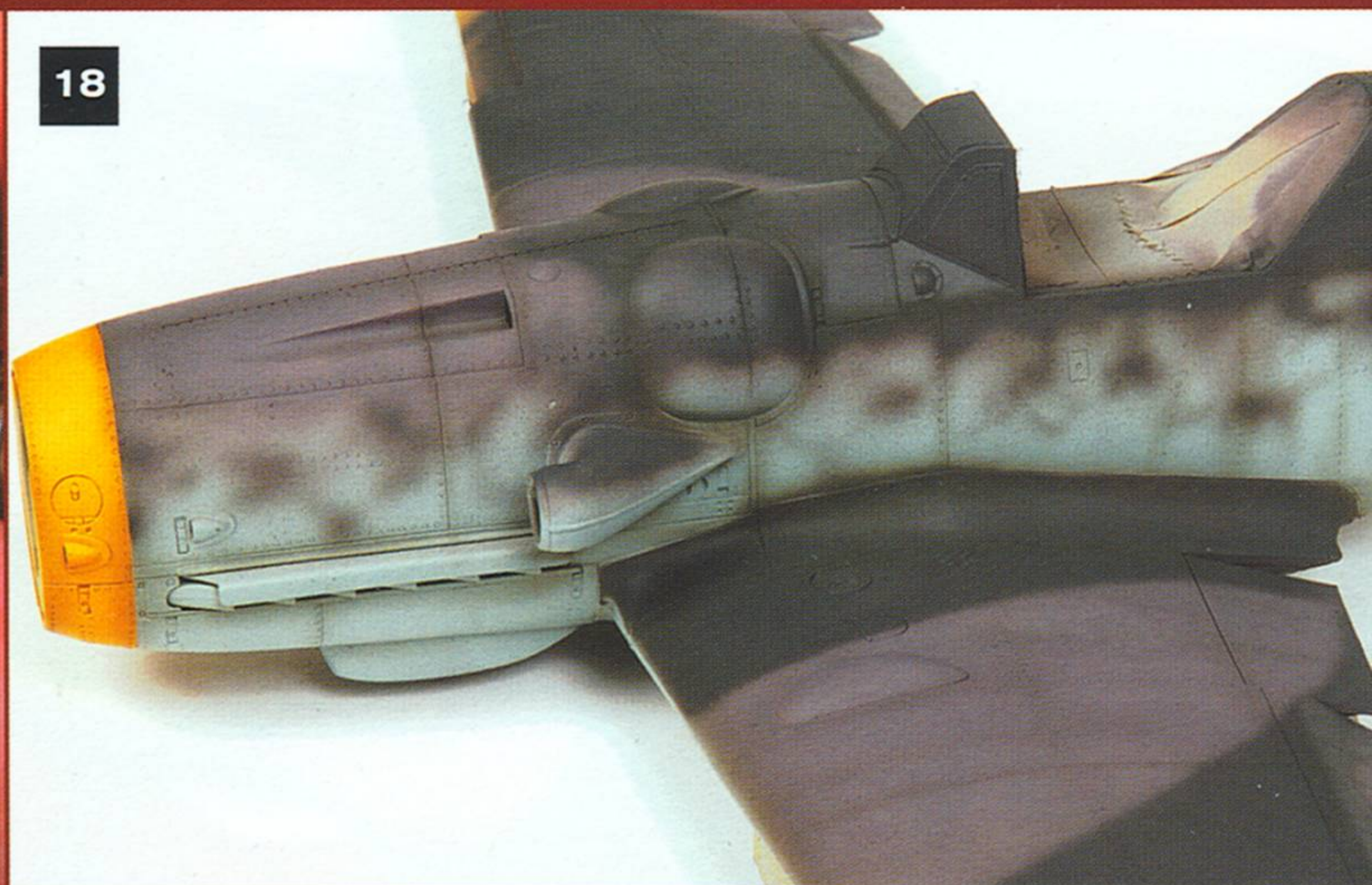
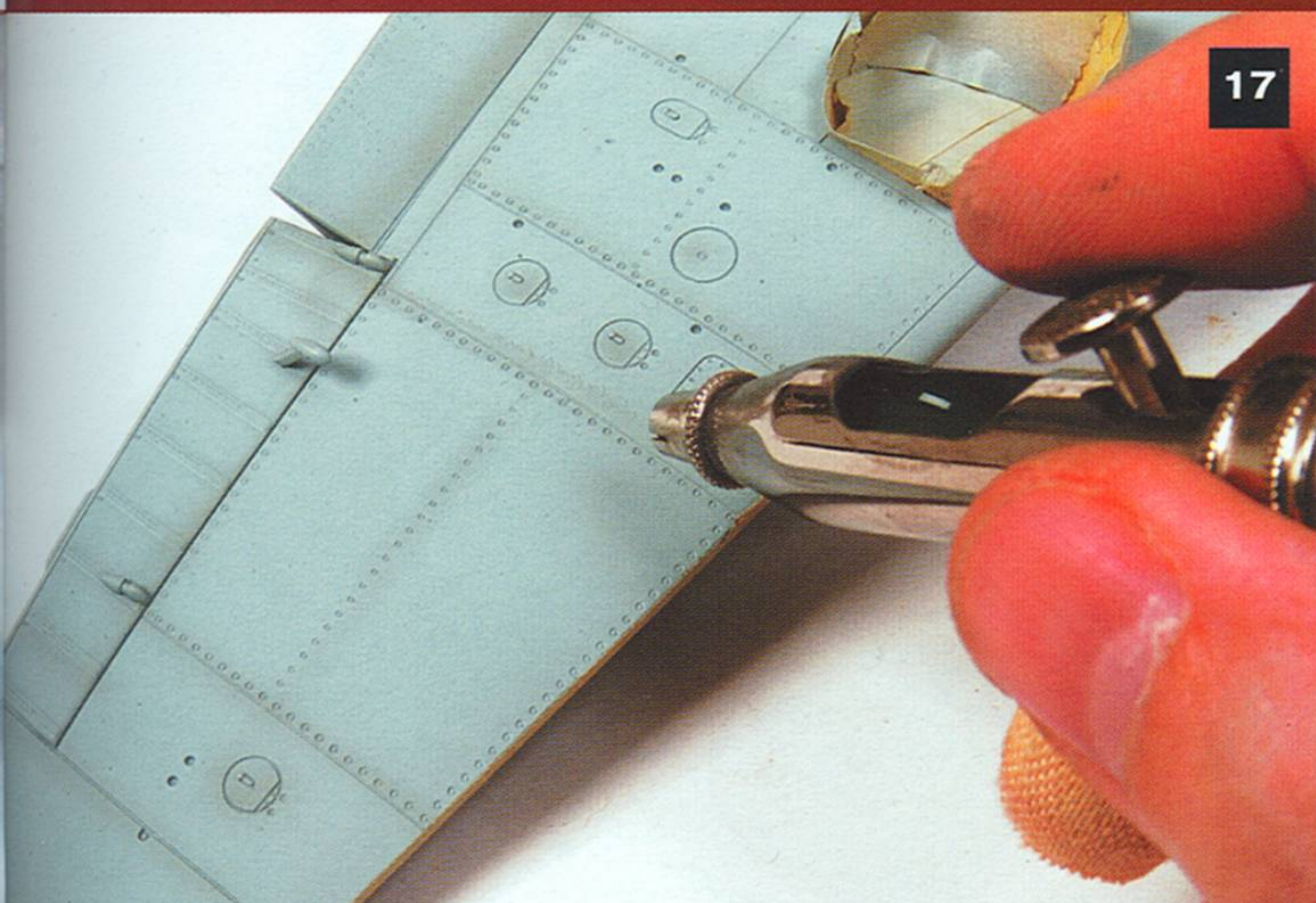
Photo 19

Eagle Cal decals were used and applied using a combination of Micro Sol and Mr

Mark Softer. This is so effective that you hardly have time to position the decal before it is sucked into the paint but it worked perfectly getting the decals to conform into all the rivet marks.

Photo 20

When the decals had dried I applied an oil paint wash to pick out the rivet detail and panel lines.





21



22



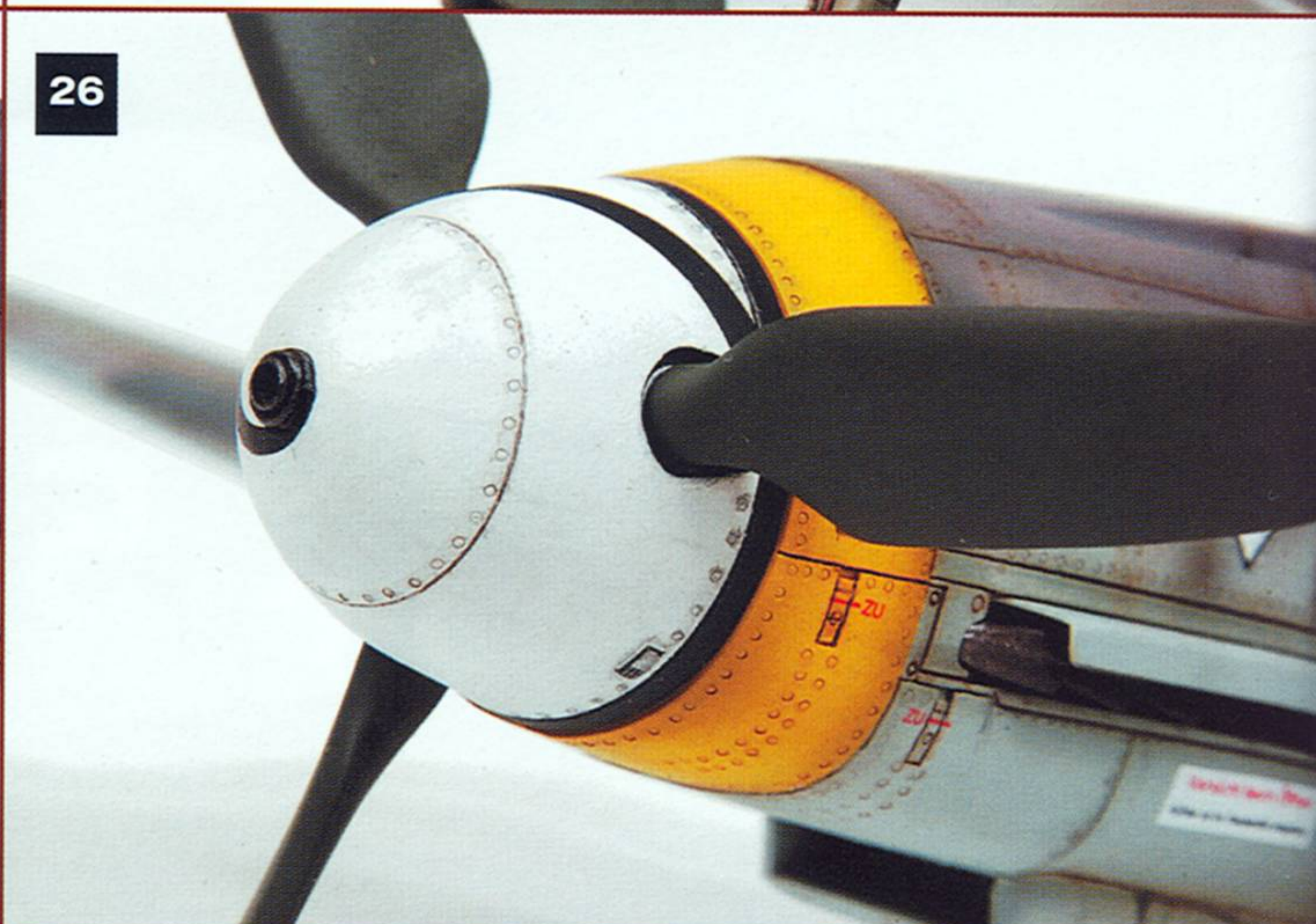
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24



25



26

Photo 21

The panel lines are picked out using a dark black/brown gouache mix.

Photo 22

The kit wheels were replaced with MDC examples and the tires were finished in Gunze 'Tire Black' and weathered with diluted pastel washes.

Photo 23

The fuel drop tank was given a wash of oil colours before oil stains were applied using Gunze 'Oil' which is very effective and dries with a good sheen.

Photos 24 to 25

The fuselage nose is masked in preparation for the application of exhaust staining. This was applied with gouache which is very fine and easier to control and being water soluble any overspray can be

wiped away easily.

Photo 26

The kit spinner was replaced with the accurate MDC example and rivet detailing was also added to this.

Photos 27 to 29

Fuel stains were applied using a fine brush to the filler ports along with dribbles of leaking oil from the oil cooler running back along the fuselage.

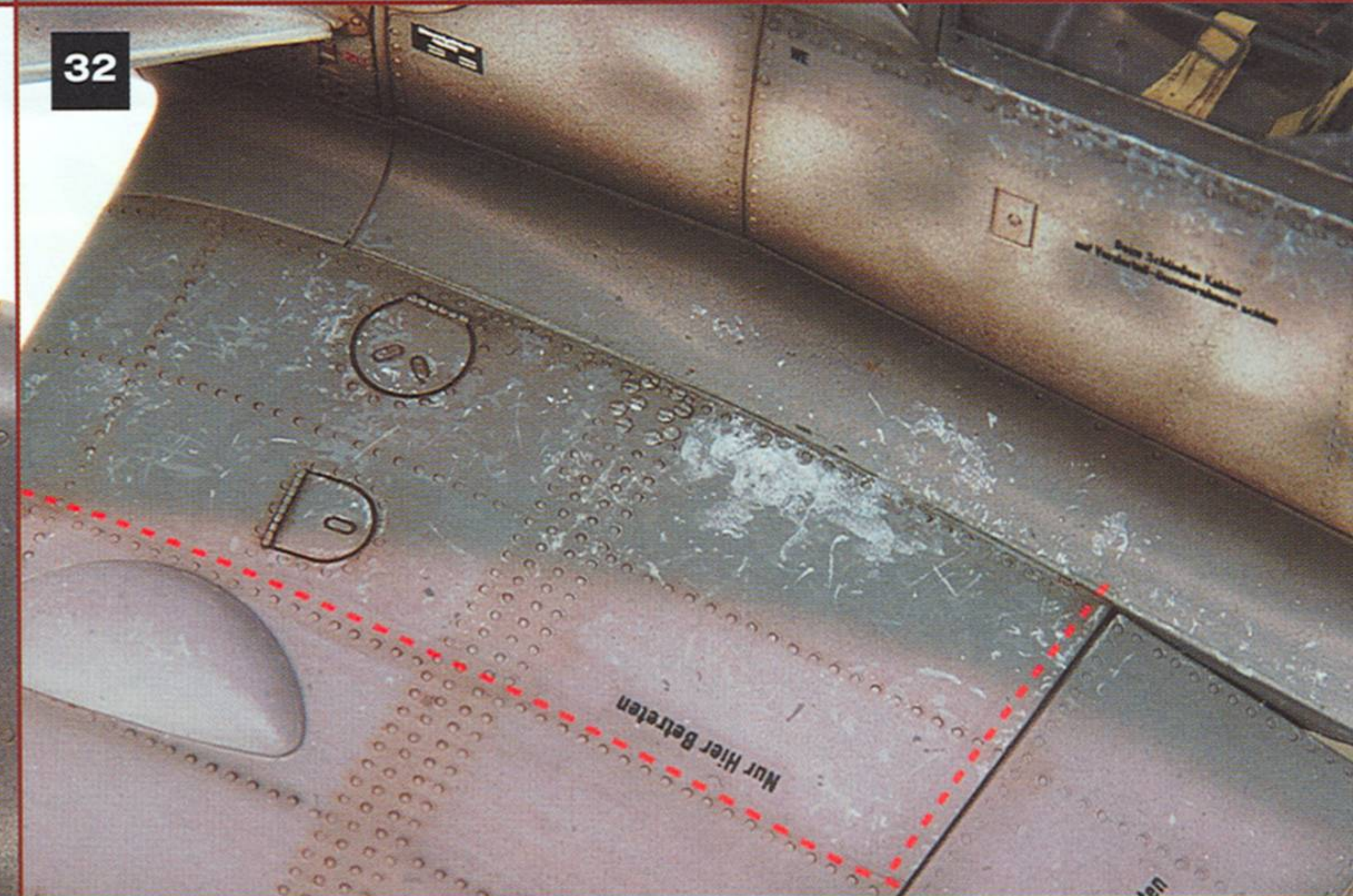
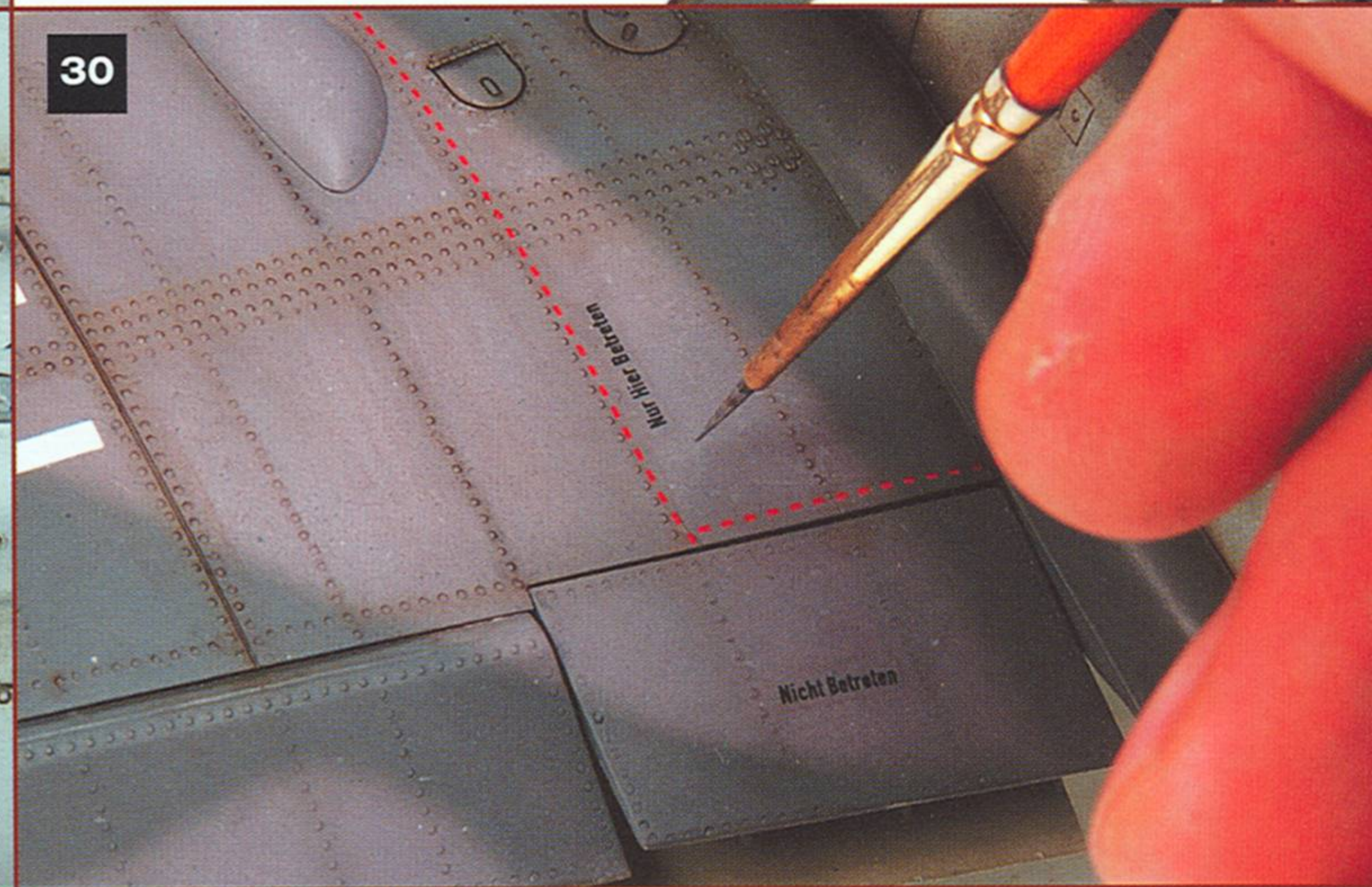
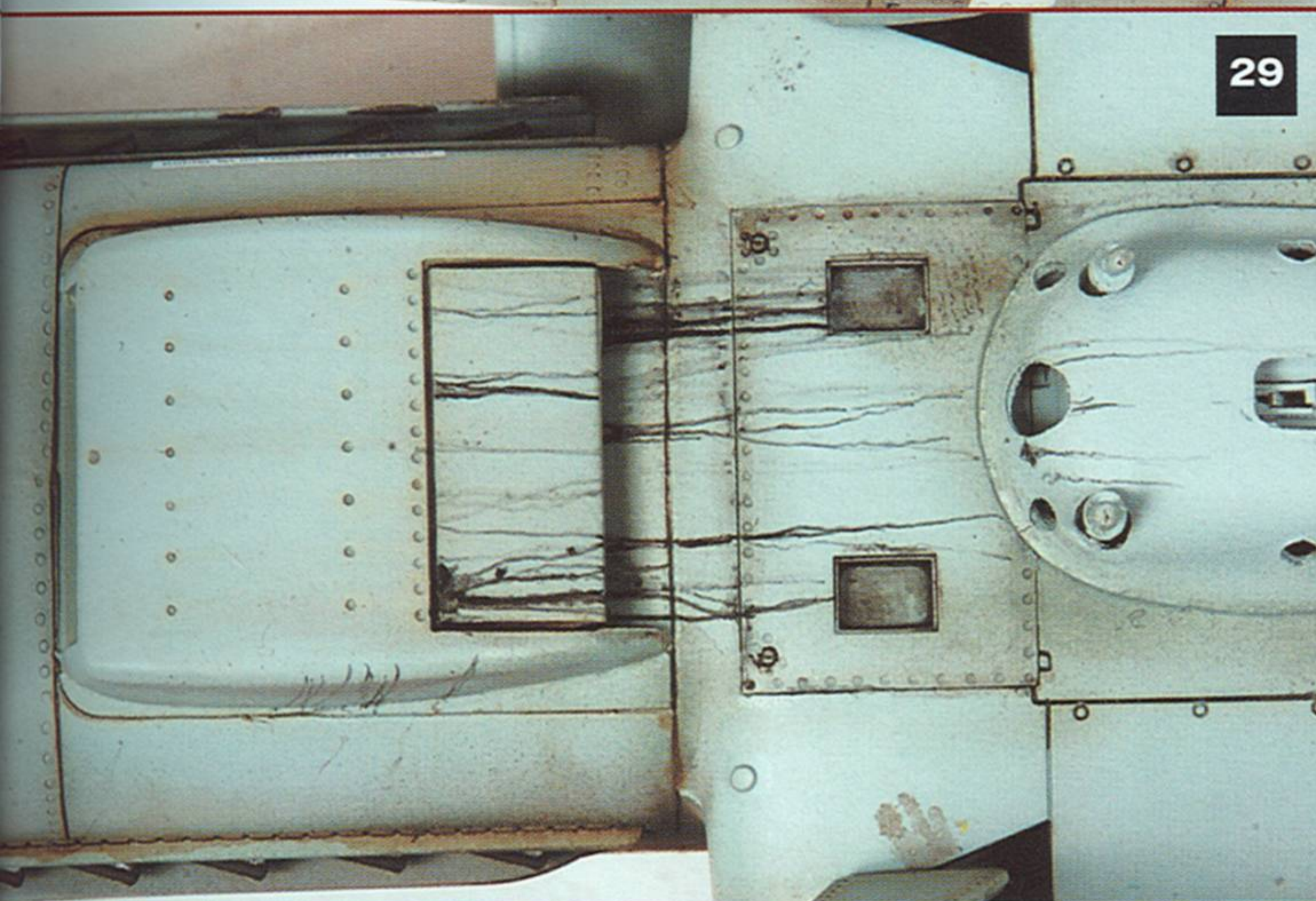
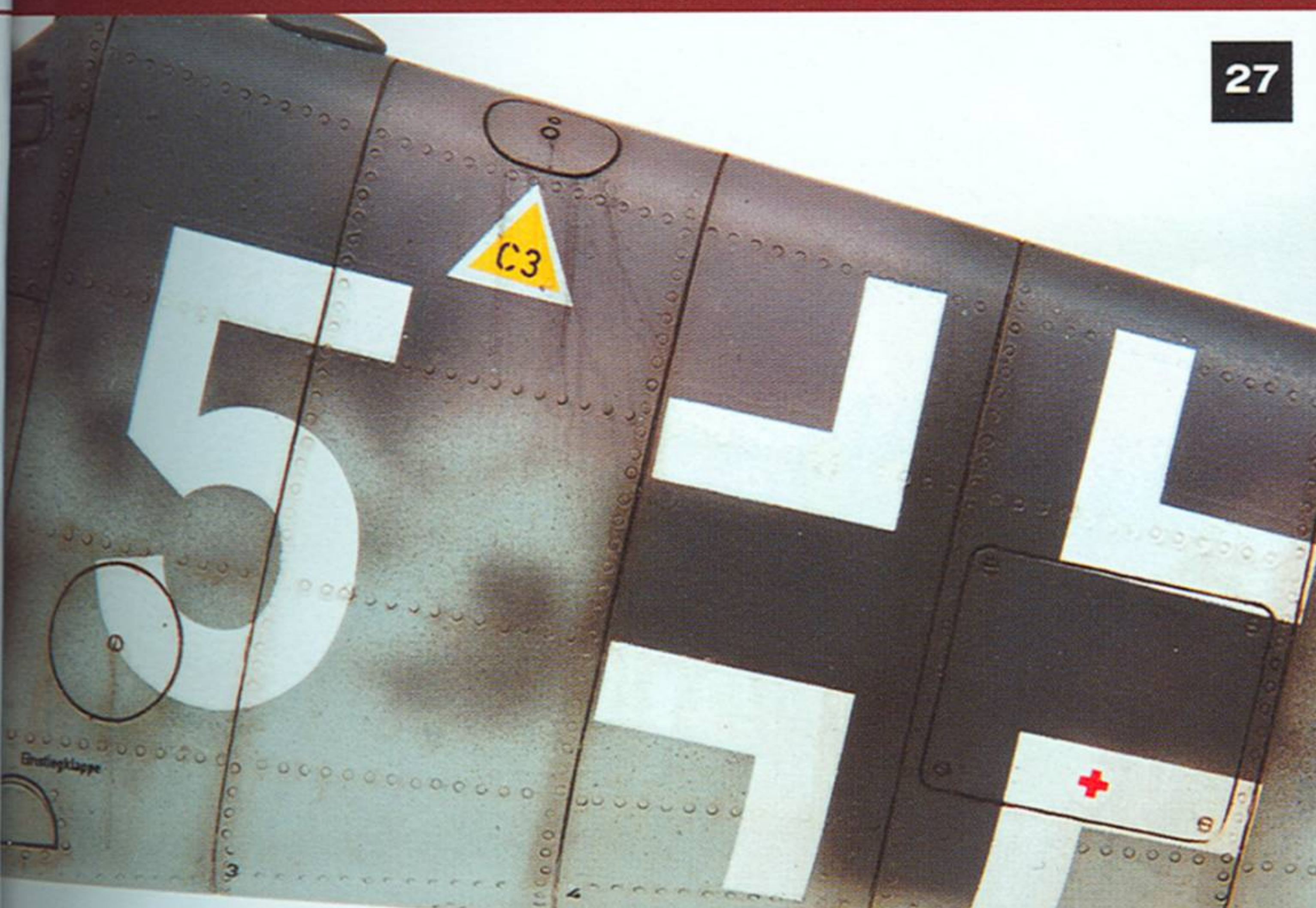


Photo 30

Damage was applied to the paint on the wing roots beginning with subtle lighter tones of the camouflage colours. The lighter colours are applied using a small brush in small chips and scuffs.

Photo 31

A similar technique was used to apply wear around the edges of the cockpit using a very light grey tone.

Photo 32

A mix of white and silver was used to add heavier wear to the wing roots and around the access panels.



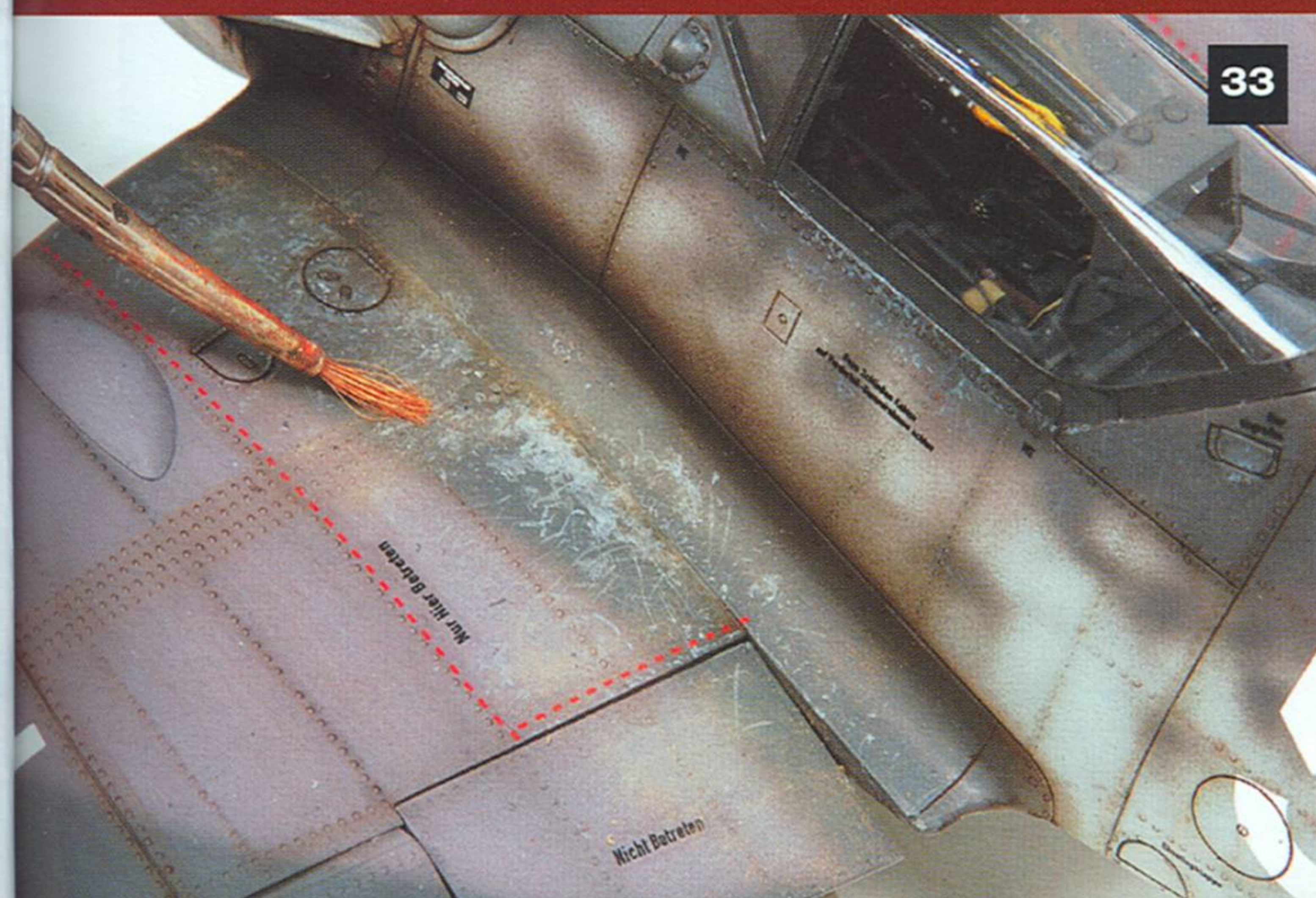


Photo 33

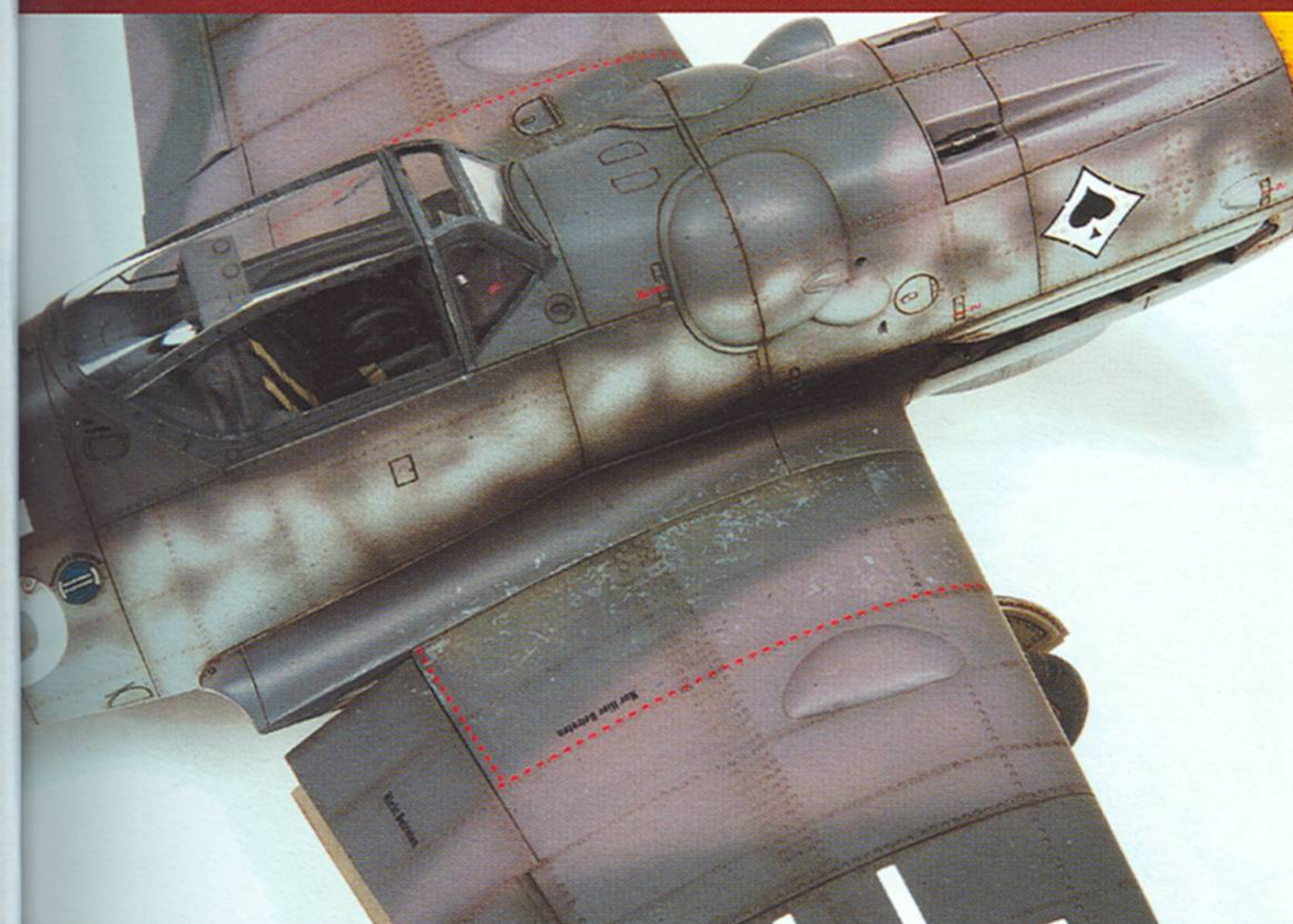
Brown pastels were applied to the walkways on the wing roots especially on the left hand side.

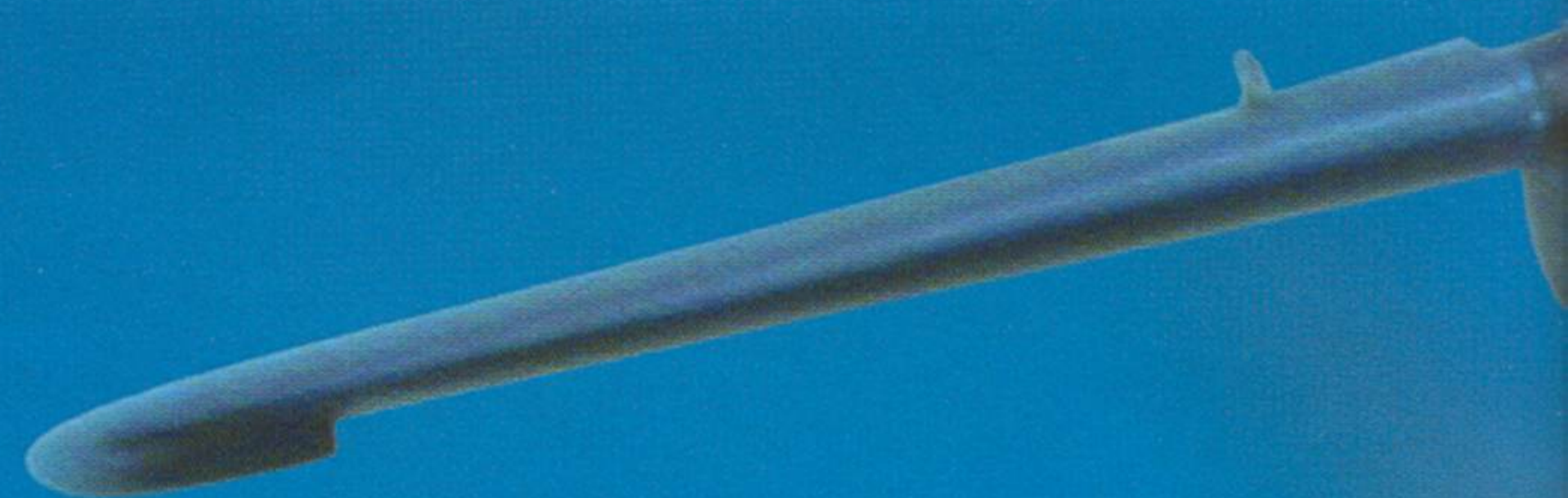
Photo 34

Finally the rigging was added using invisible thread.

With the bird completed in something of a rush I have to admit, I am a convert to the rivetted look. At this scale the model looks nude without them and providing you tackle the rivetting in small areas between say, building the cockpit, you can maintain a degree of sanity. However MDC now produce an identical tool for 1:48th scale

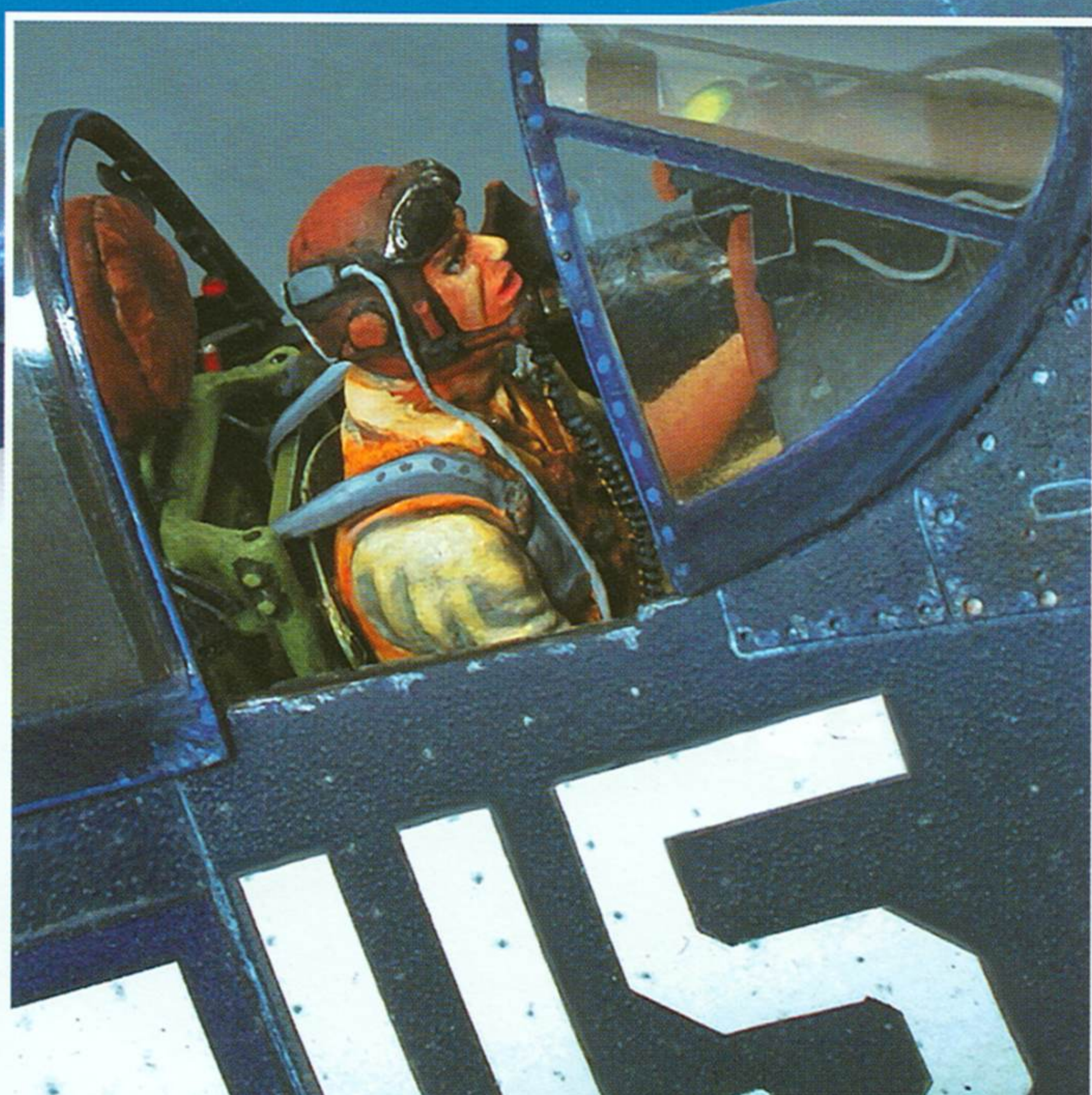
so there may be nowhere to hide and we may all be seeing spots before our eyes.





The last

MISSION



Ricardo Rodriguez models the Corsair Mk IV, flown by Lt Robert Hampton Gray, of No 1841 NAS, HMS Formidable, British Pacific Fleet, Task Force 37, in which he won his posthumous VC

**Modelled and described by
Ricardo Rodriguez**

**Photographs by Luciano
Rodriguez**



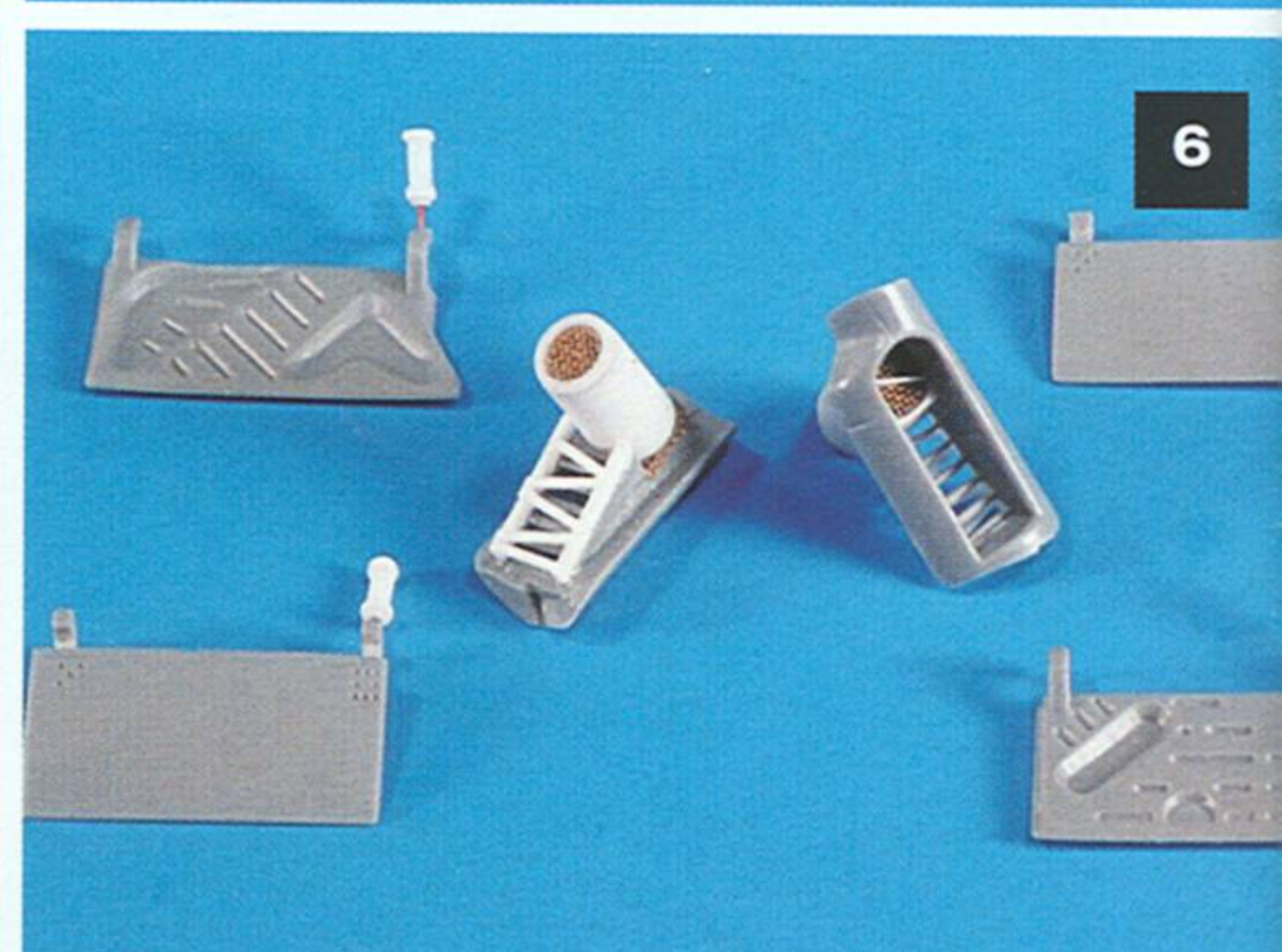
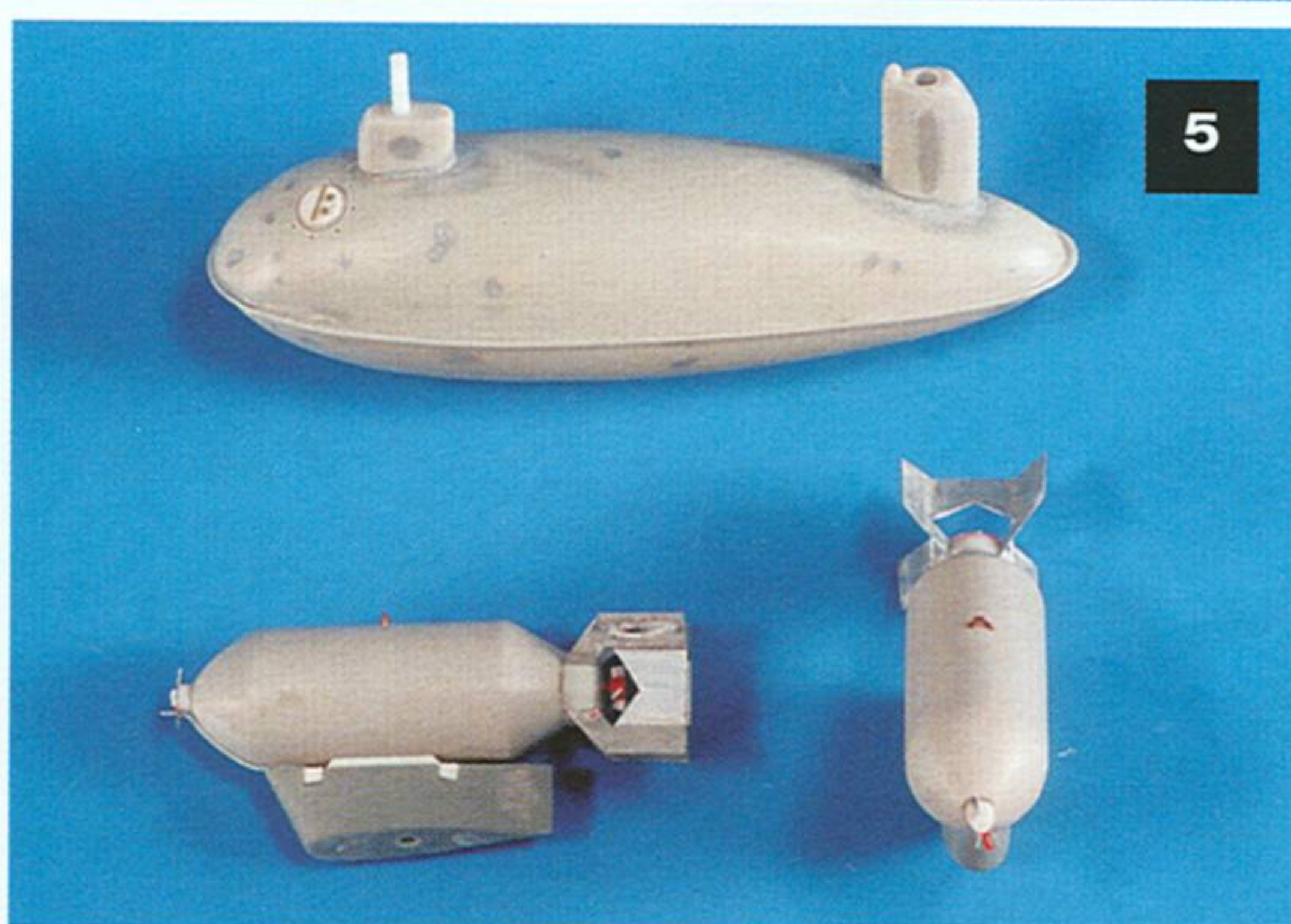
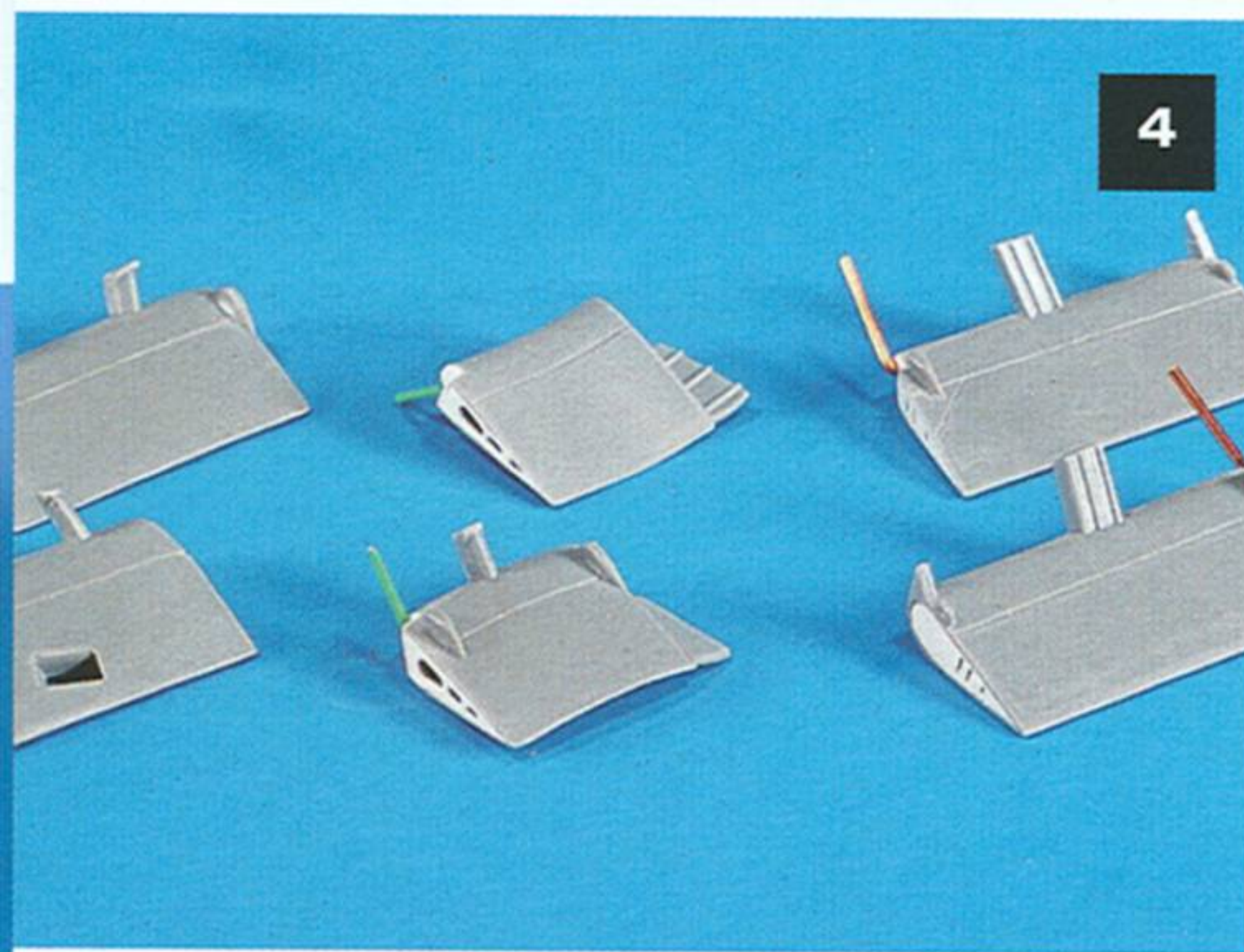
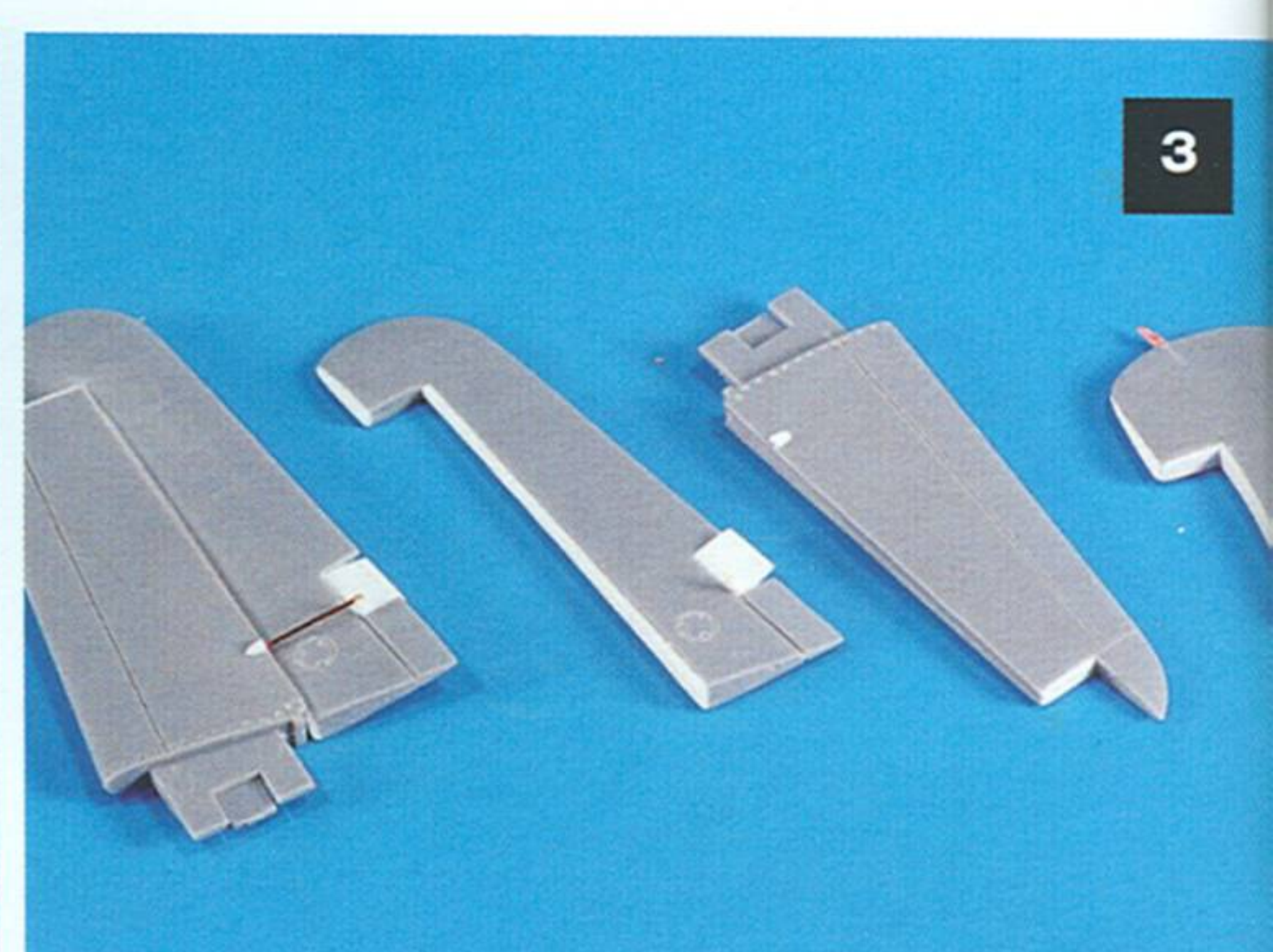
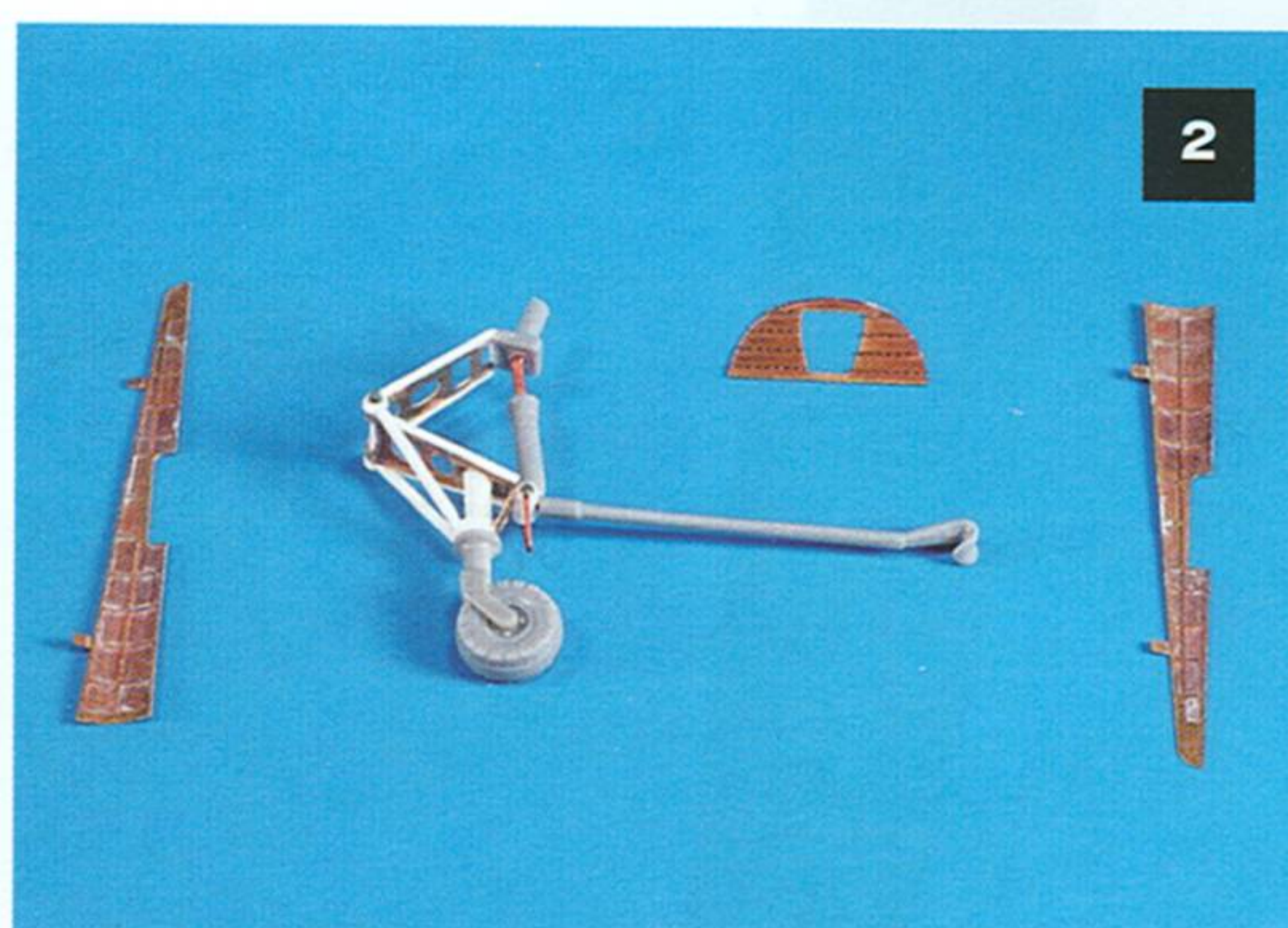
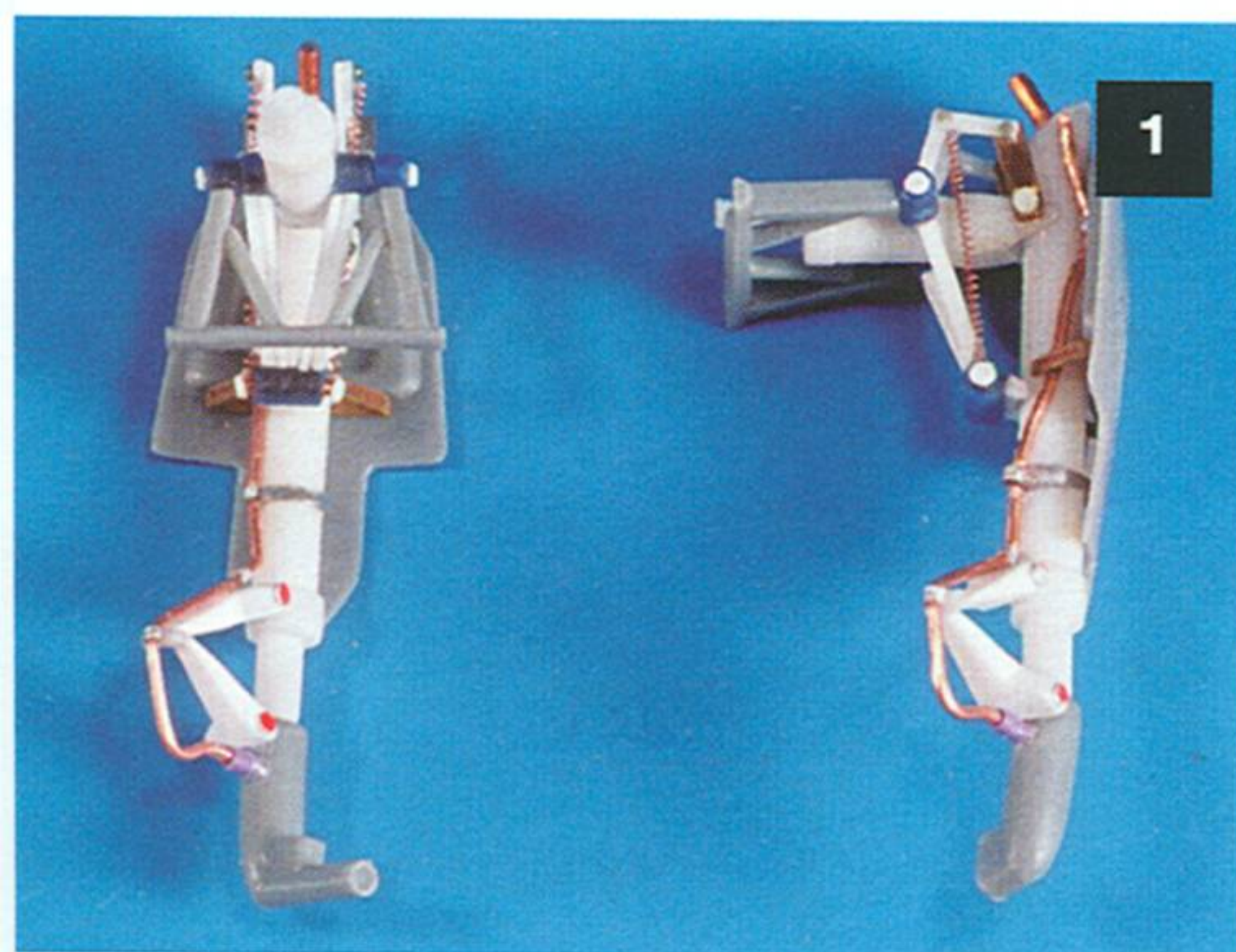
On the morning of 9 August 1945, the day the second atomic bomb devastated the city of Nagasaki, and six days before Japan unconditionally surrendered, a Flight of FAA Corsairs led by Lt 'Hammy' Gray took off from HMS Formidable to attack Imperial Japanese Navy ships in the Bay of Onagawa, about 200 miles northeast of Tokyo along the Pacific coastline. As the Corsairs closed in over the hills and skimmed the sea, the Japanese ships opened fire.

Lt Gray's Corsair Mk IV was hit almost immediately after dropping the first bomb, but he kept on the bomb run and dropped his second bomb which hit the engine room of the escort destroyer IJN Amakusa, following which, the ship rapidly sank. However, as his Corsair flew away, it suddenly burst into flames, lost control and crashed into the sea.

Lt 'Hammy' Gray, originally from British Columbia, was the last Canadian to die in combat during World War Two, and was awarded the Distinguished Service Cross and the Victoria Cross - posthumously.

Realising a new possibility

Tired of making models mounted on bases, one day I was inspired to open my eyes to a world of new possibilities seldom explored by static scale modellers, where our models can end up flying! I had a mental picture of a model taking off from the flight deck of an aircraft carrier, at full throttle with the flaps deployed and the undercarriage just starting to retract. An irresistibly tempting and attractive scene, regrettably too difficult to reproduce, but...



Modelling an aircraft 'in flight' gives modellers a chance to show off the aircraft's lower surfaces as a reward for all the additional efforts and difficult to show on a static ground display. But demands a knowledge of its technical and functional aspects and flight control, and a thick skin to know how to tolerate such teasing comments such as, "Hey, why have you punctured your aeroplane on a stick?"

For this project, I used the excellent Tamiya 1/48 scale Corsair kit together with some photo-etched parts from Eduard set and MDC resin sets, both for the Corsair.

Assembly

The following photographic step-by-step assembly work was completed in stages so that all the visible parts could be fully detailed. It was very important to keep this in mind when making the model that can be seen from almost any angle as any additional effort, on even the smallest detail, will be visible to the observer.

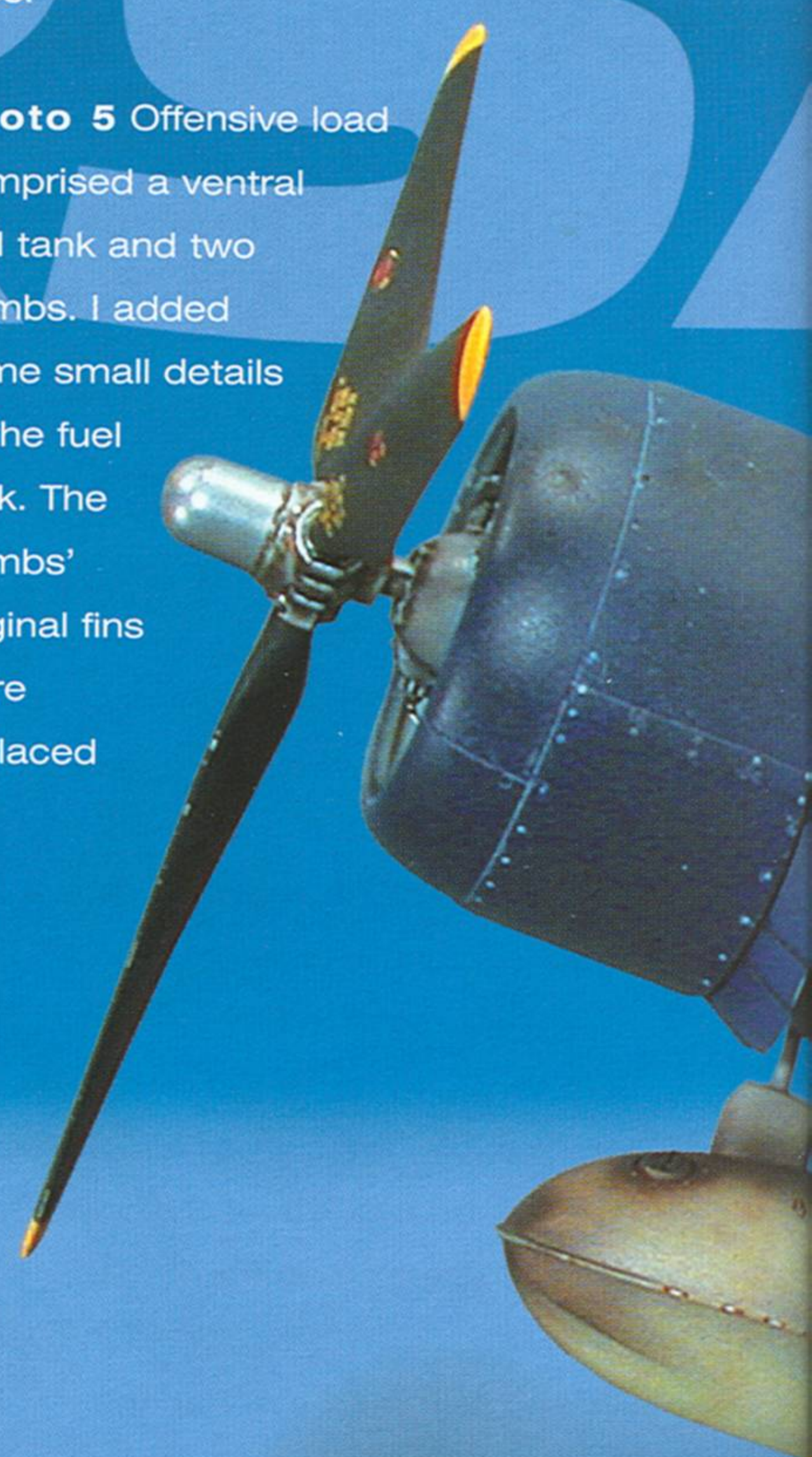
Photos 1 and 2 The landing gear is a key element of the under surfaces. As Corsairs had a hydraulic system instead of electric actuators to retract and deploy the main landing gear, a delay in retraction of one leg to the other is characteristic. Also, the leg rotated through about 90° to allow the wheels to fit into the wheel bay. I had to keep in mind these small details to add fidelity to the model.

Before building this complex landing gear, I made many parts from plastic tube using a lathe and drill, with some elements from the original kit, a photo etched detail set, and a lot of copper rod.

Photos 3 & 4 All the control surfaces were removed with a scribe and a sharp modelling knife. The resultant 'gaps' in the leading edges of the ailerons, elevators and rudder were then 'filled' with strips of plastic card which were rounded with fine sandpaper, ready to 'slot back' into the wings, tailplanes and rudder. Interior ribs

were added with lightly engraved panel lines.

Photo 5 Offensive load comprised a ventral fuel tank and two bombs. I added some small details to the fuel tank. The bombs' original fins were replaced



with aluminium sheet from recycled drinks can. Fuses were from stretched sprue and the wing bomb racks were detailed with fine plastic strips.

Photo 6 All the the landing gear cover actuators were made from Evergreen plastic rod inserted with copper rod. The air intake interior was fully detailed with photo etched grilles as both sides are visible in the model.

Photo 7 Only 'minor surgery' was required and some putty, to adapt the pilot into a busy 'take off' posture. The oxygen mask tube and communication system wires were made from copper thread.

Photos 8& 9 Thin plastic sheet and copper thread are perfect for detailing engine parts. First, I thinned down the inner side of cowl flaps, and then added all the interior components with plastic card and copper rod. Cables connecting the cylinders were added and the cylinder

rings were added with small disks made from styrene sheet using a punch & die set.

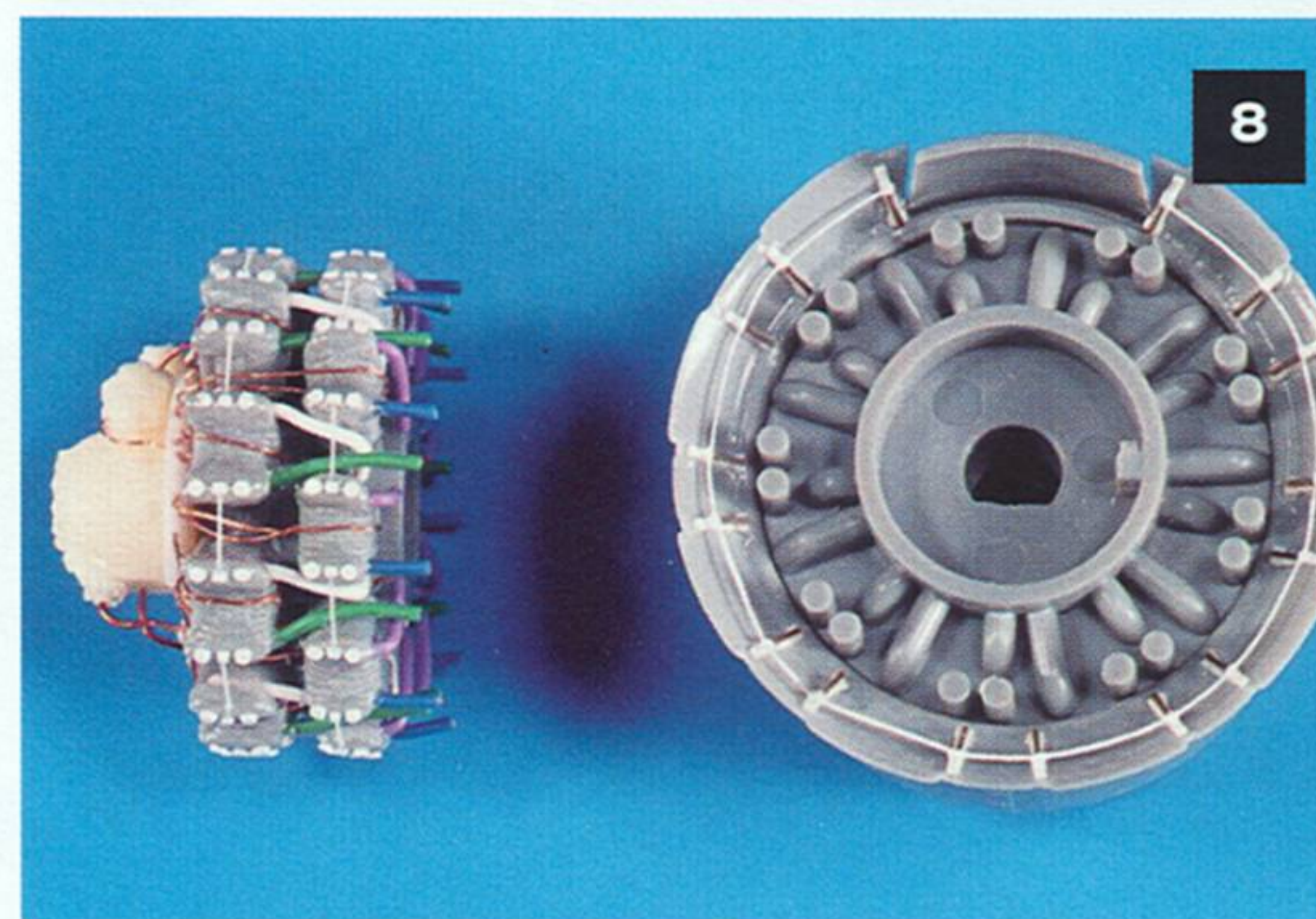
Photo 10 Shows all the elements that made up the cockpit before assembly.

Photo 11 For the cockpit interior details, I used photo etched parts combined with scratchbuilt plastic parts, plus some of the kit's original parts, and some wiring with copper rods of different sizes. I fitted the pilot in the cockpit at a later stage - which did not mean I could forget to properly detail the cockpit interior!.

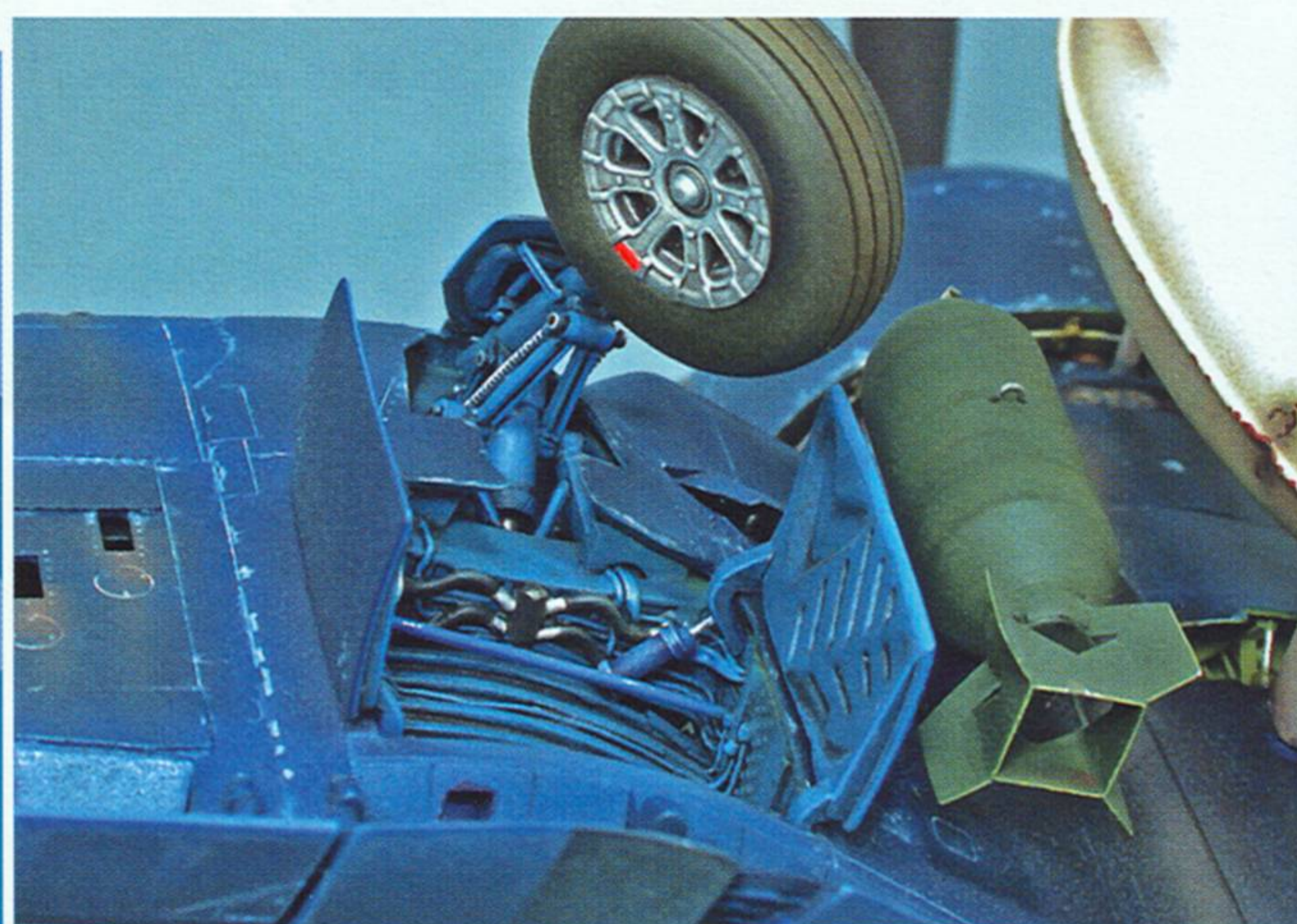
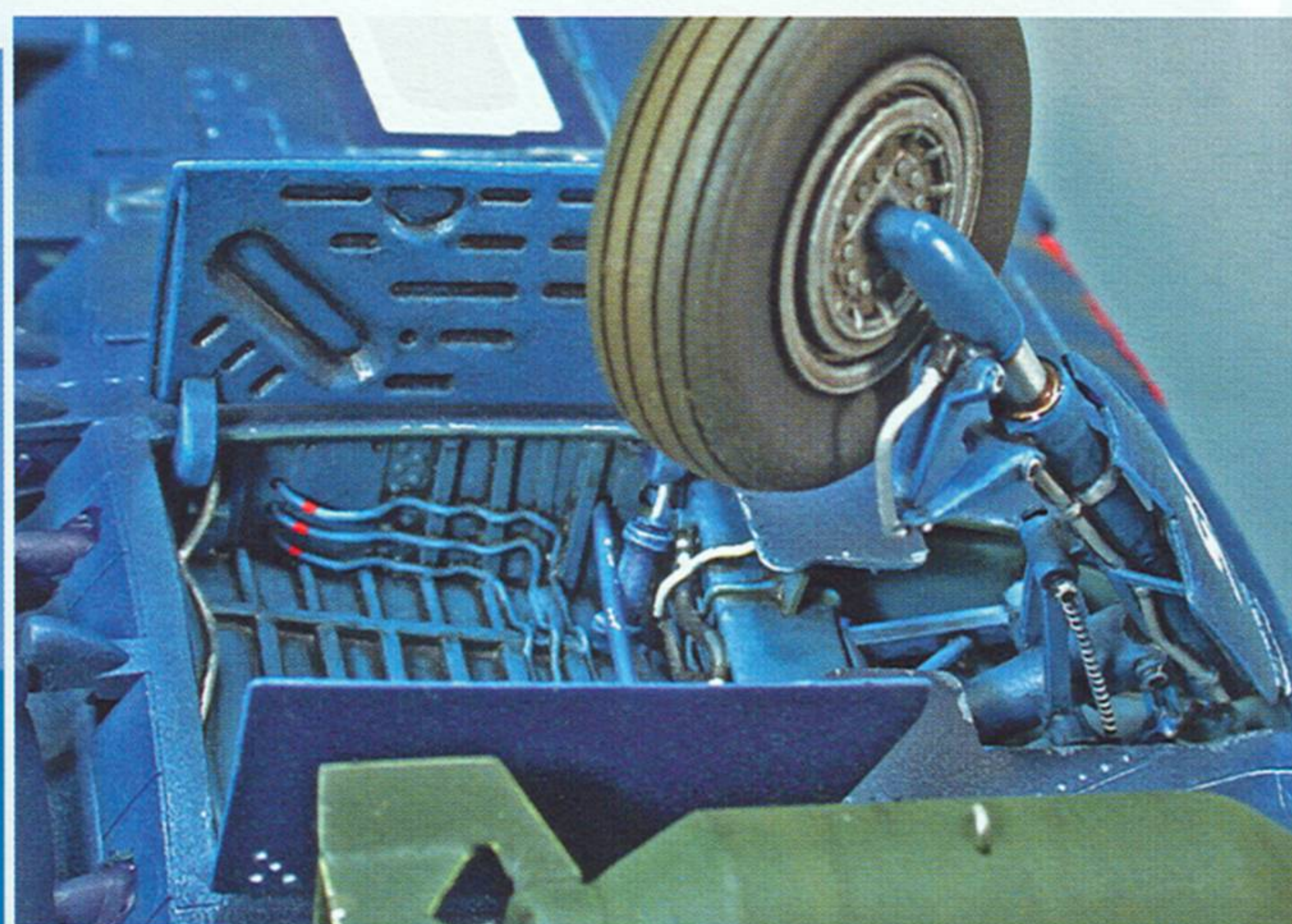
Photo 12 Detailing the lower half of the wing centre section. The open panel edges are carefully thinned down with a craft knife and sandpaper. The brass exhaust pipes are from Moskit. The distinctive suspension hooks were sculpted from thick copper wire using watchmaker's files. The thin vent covers were made from fine



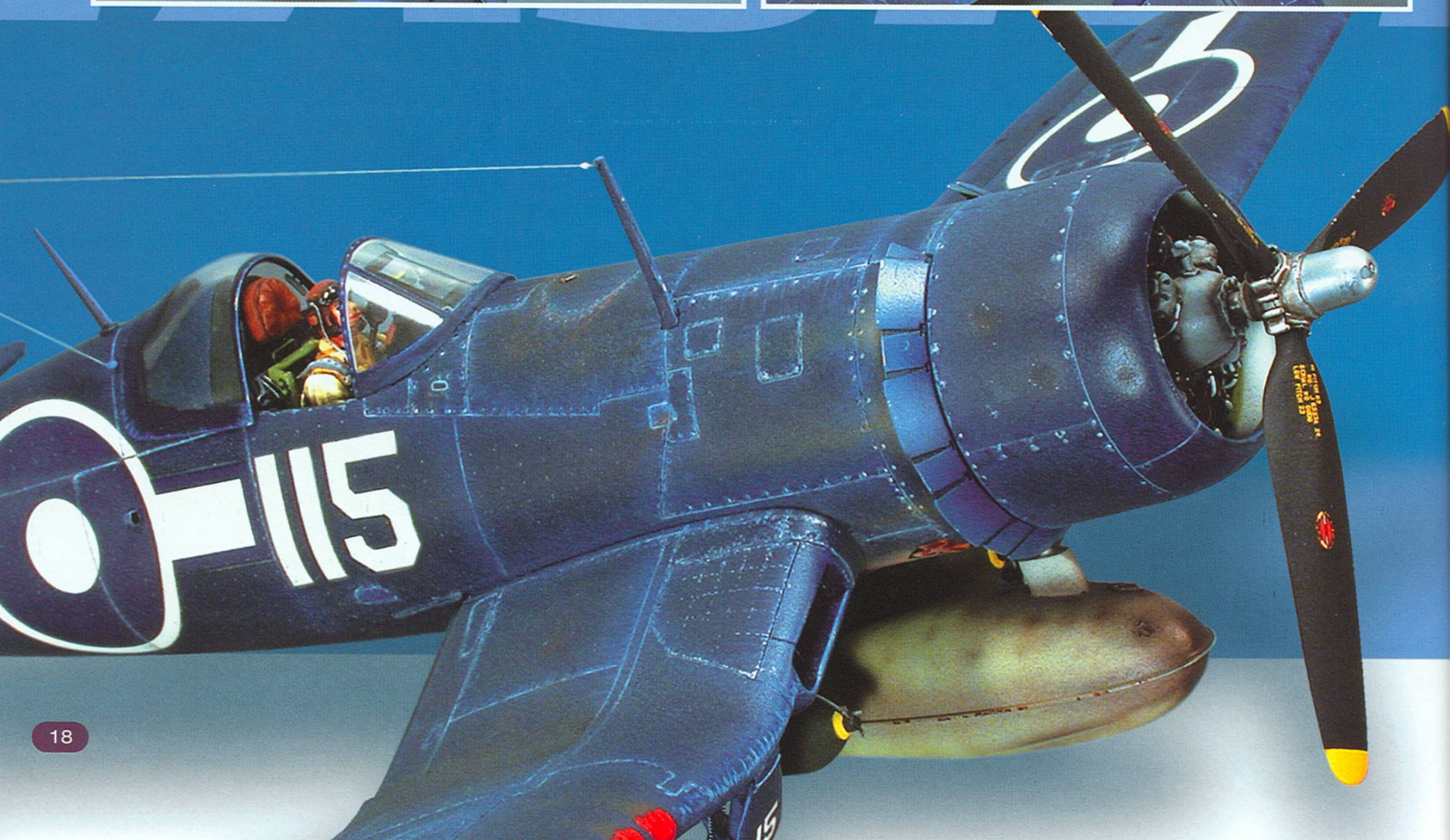
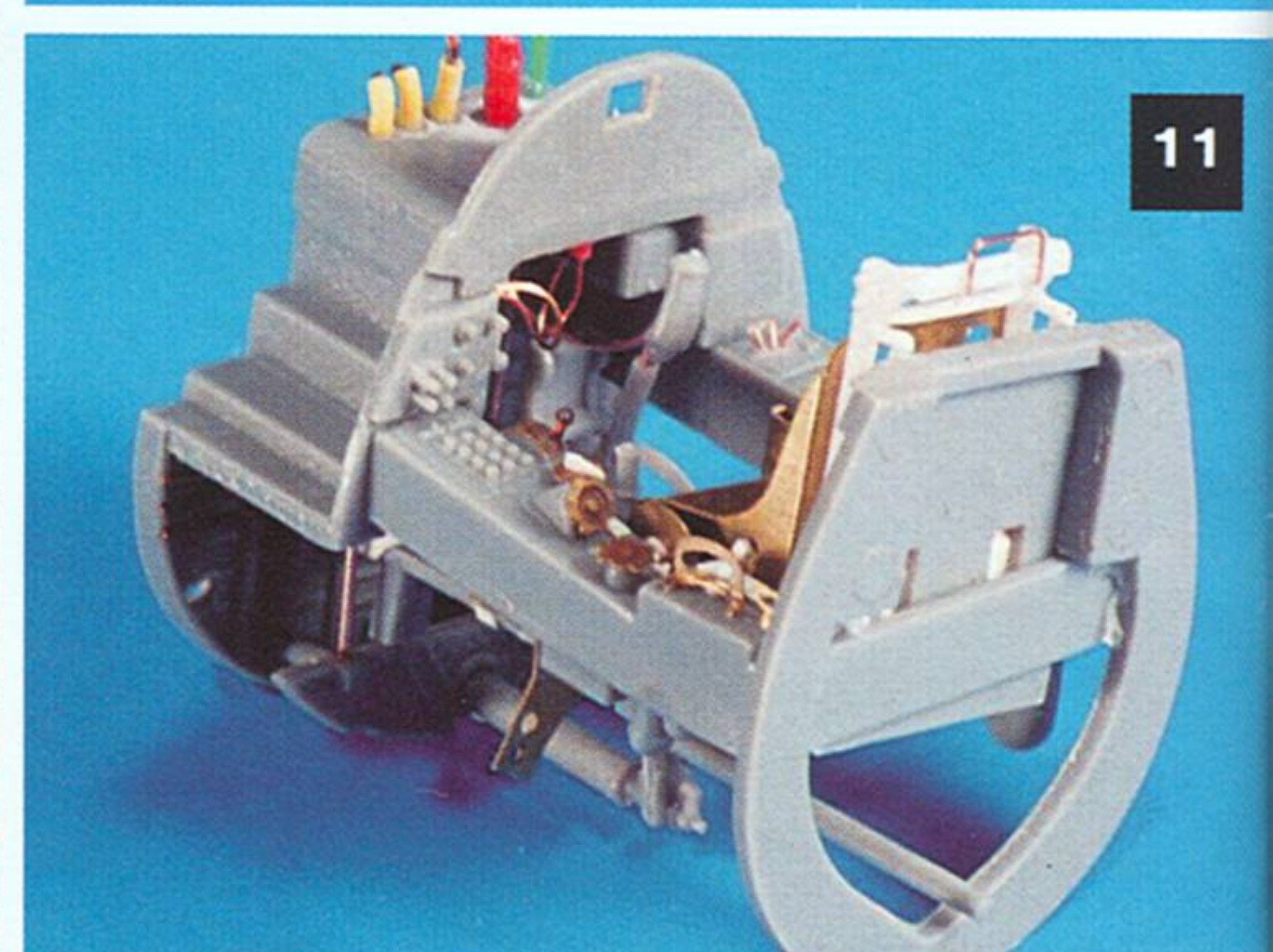
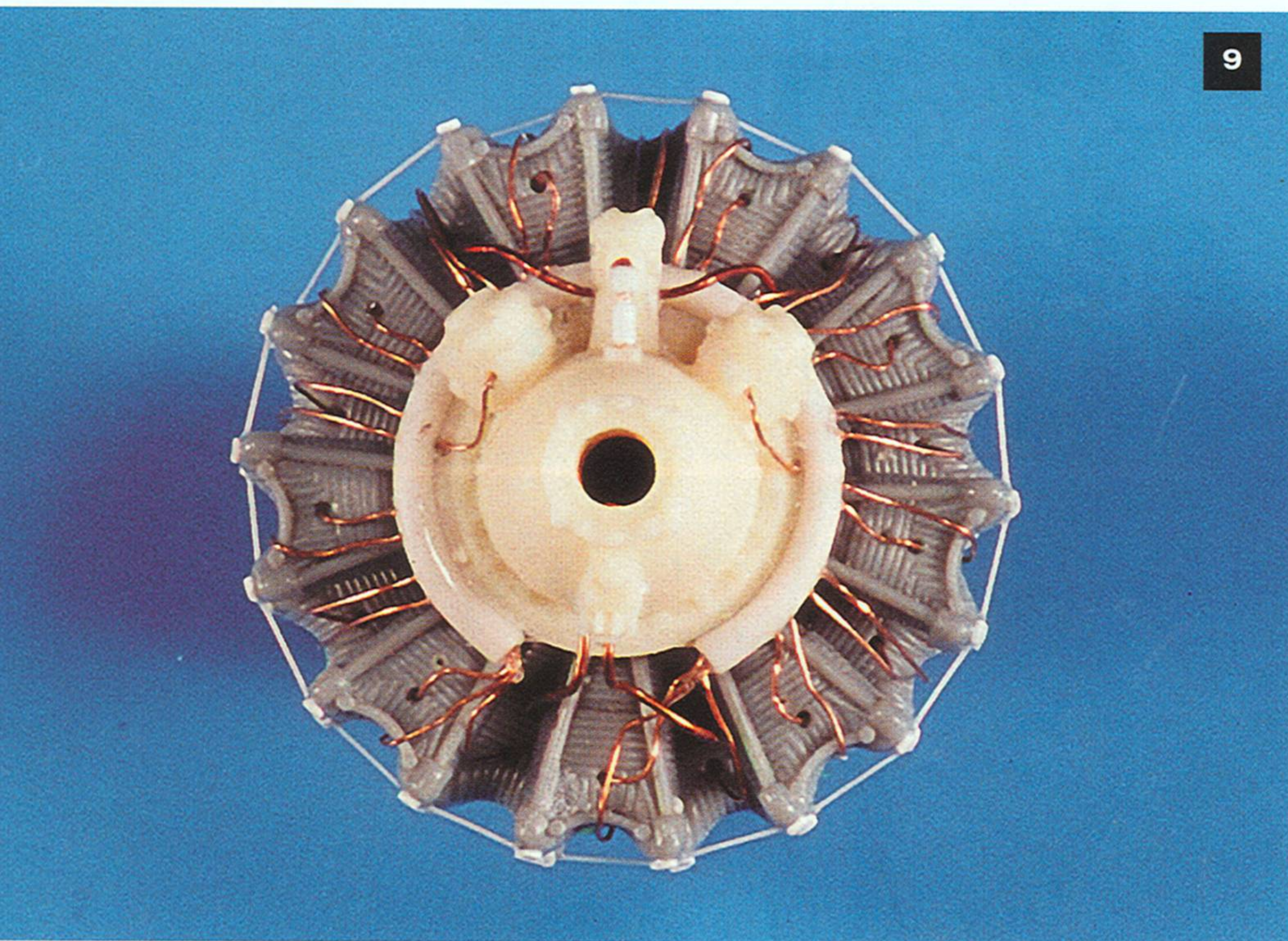
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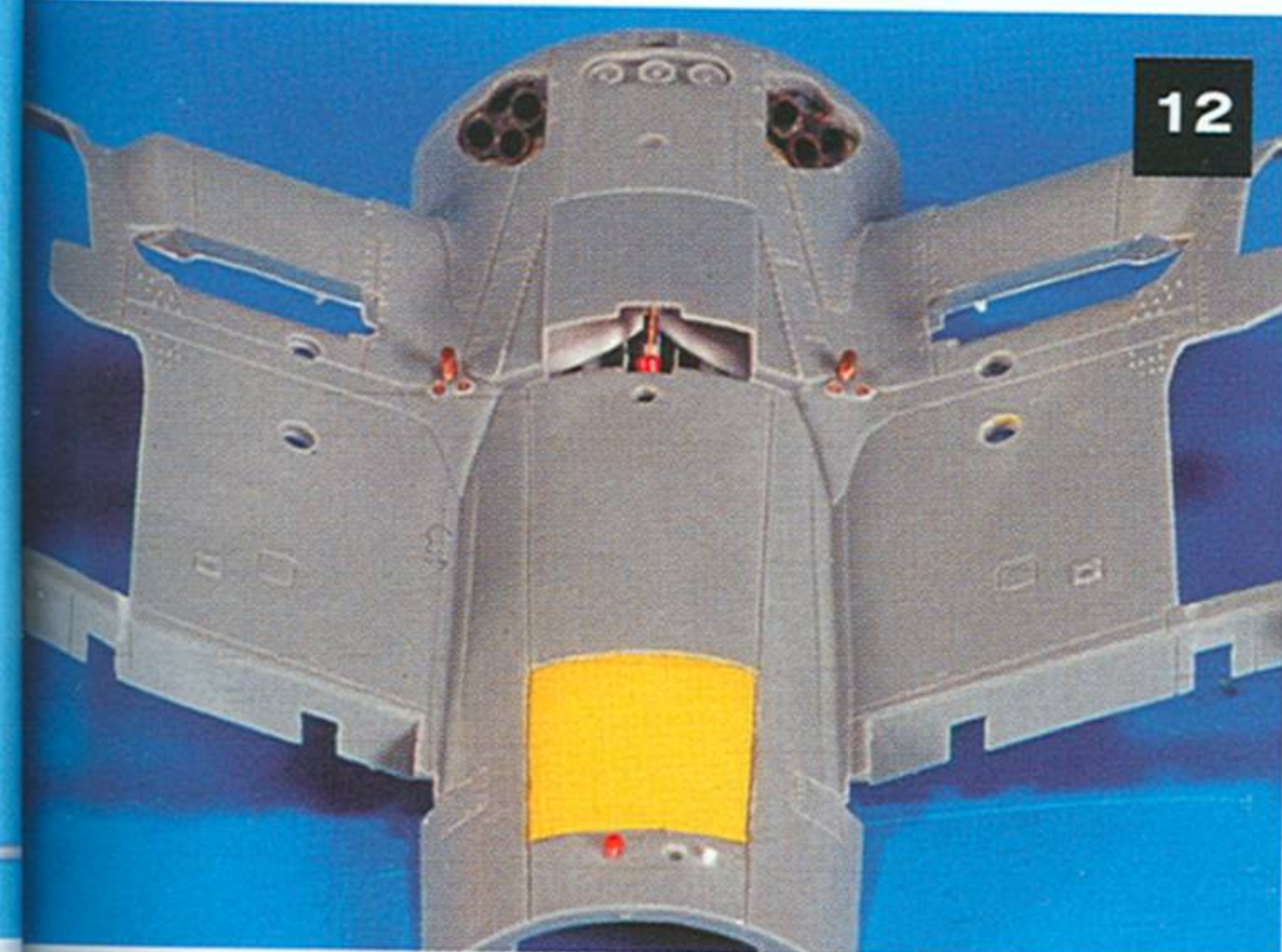


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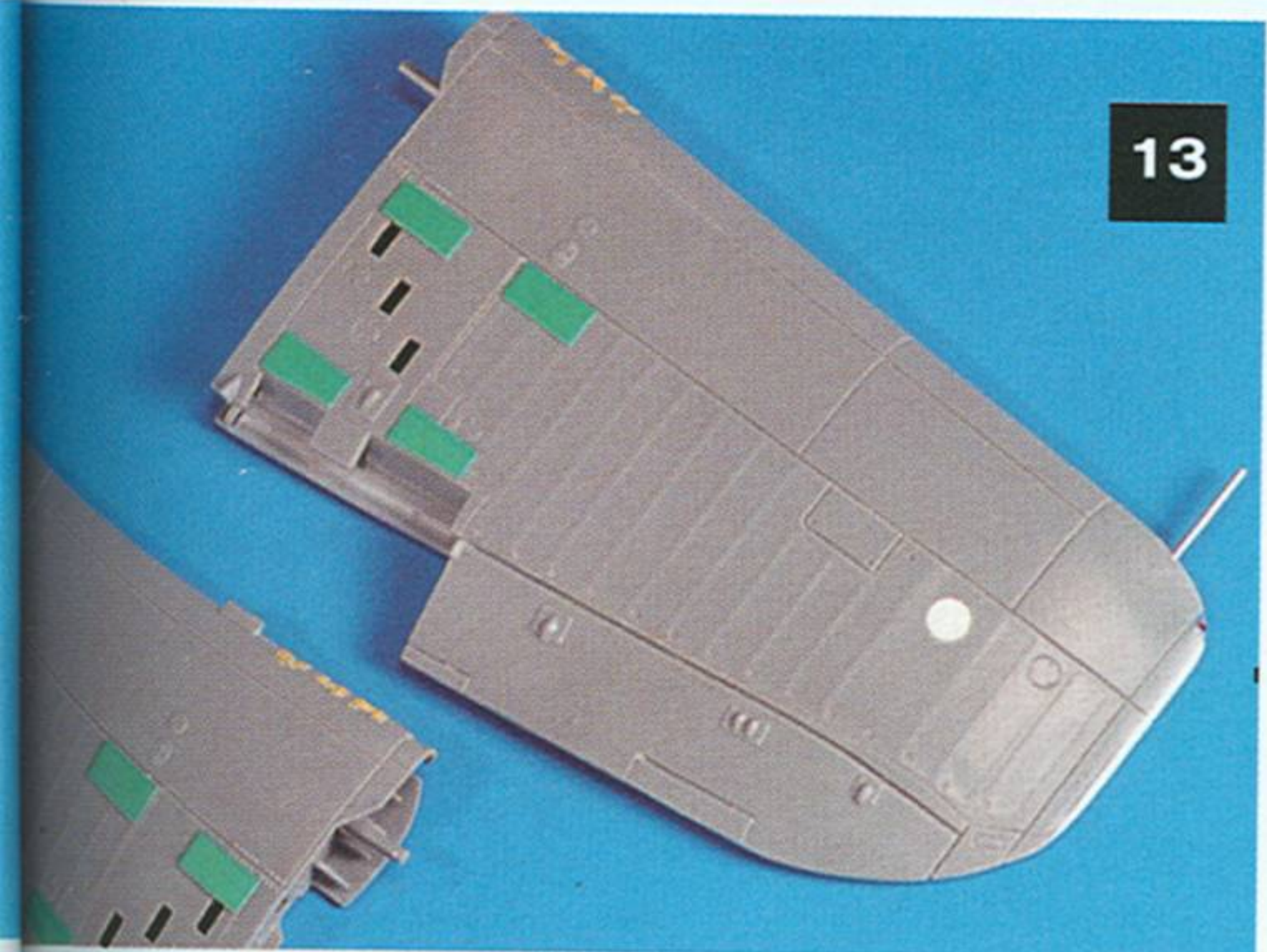


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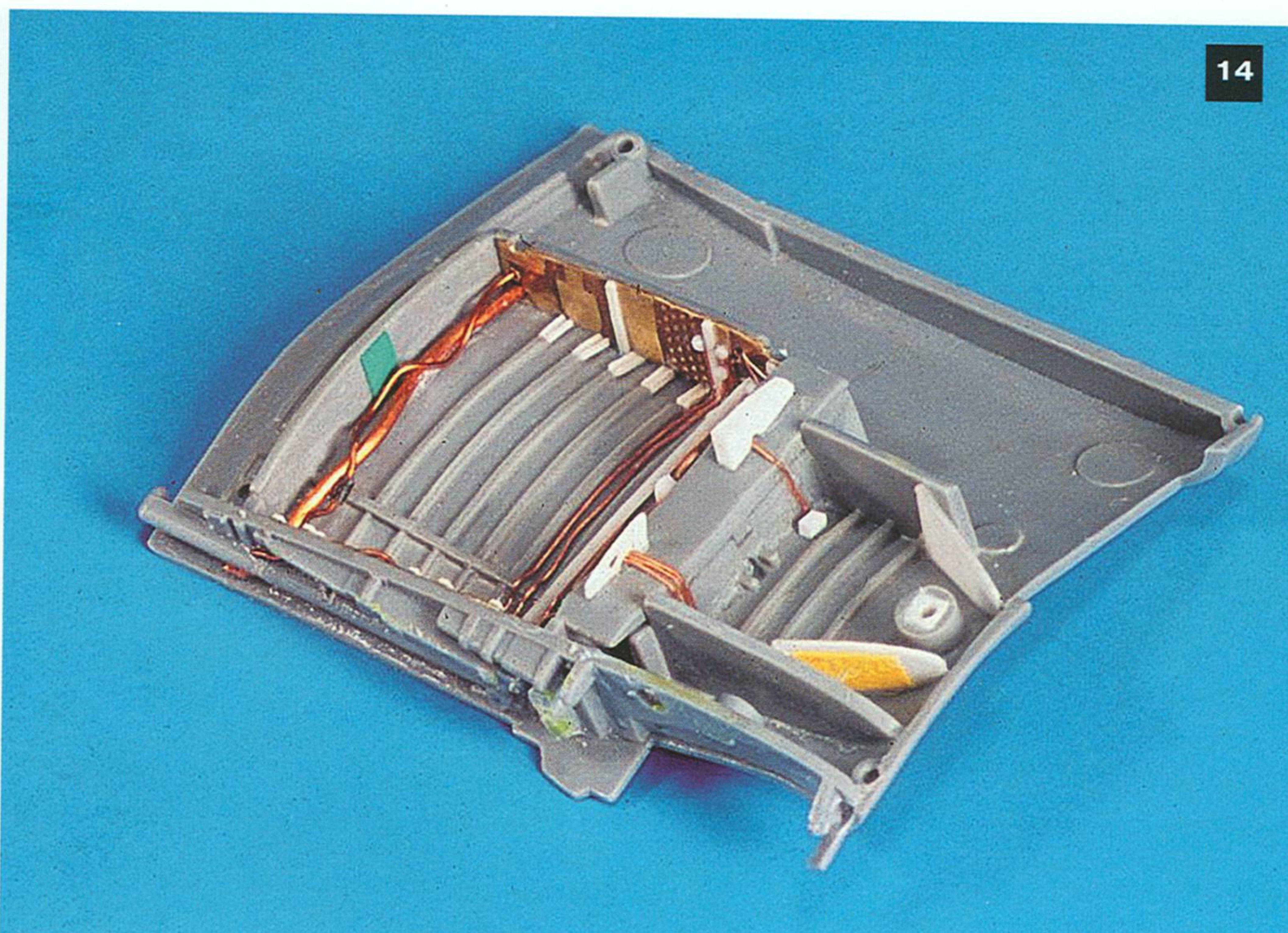




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14



brass sheet. The under surface window was protected with Tamiya masking tape.

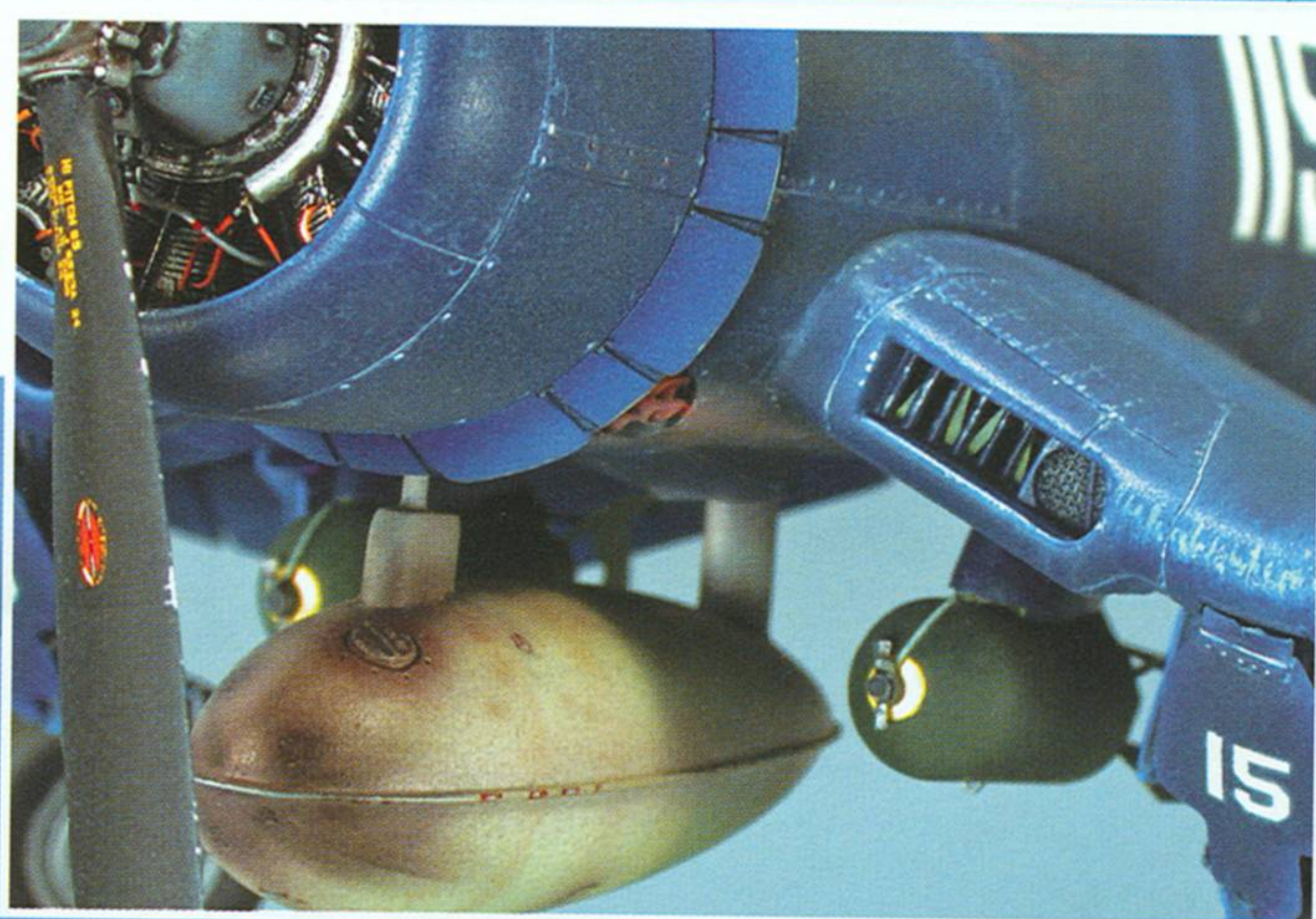
Photo 13 Wing tips were 'clipped' to represent the FAA versions and the four recessed panels were filled in with thin styrene sheet. The chromed interior of the landing light was reproduced by using aluminium sheet burnished from inside to create a circular face. The pitot tube was made from a hollow aluminium tube. The navigation lights on the wing tips were carved from pieces of transparent plastic. I drilled a hole with a fine drill, in the rear faces of the transparent pieces to represent the bulb and dropped some red paint in the hole on the left and green on the right, before fixing them to the

respective wing tips.

Photo 14 The mainwheel bay is the real focus of the undersides, so the sidewalls were intensively detailed with photo etched parts, styrene sheet and a lot of copper wire. Meticulous work was necessary to represent the dense filled complexity of these areas, criss-crossed by so many wires.

Photos 15 to 17 The wing centre section as finished, before attaching the wings.

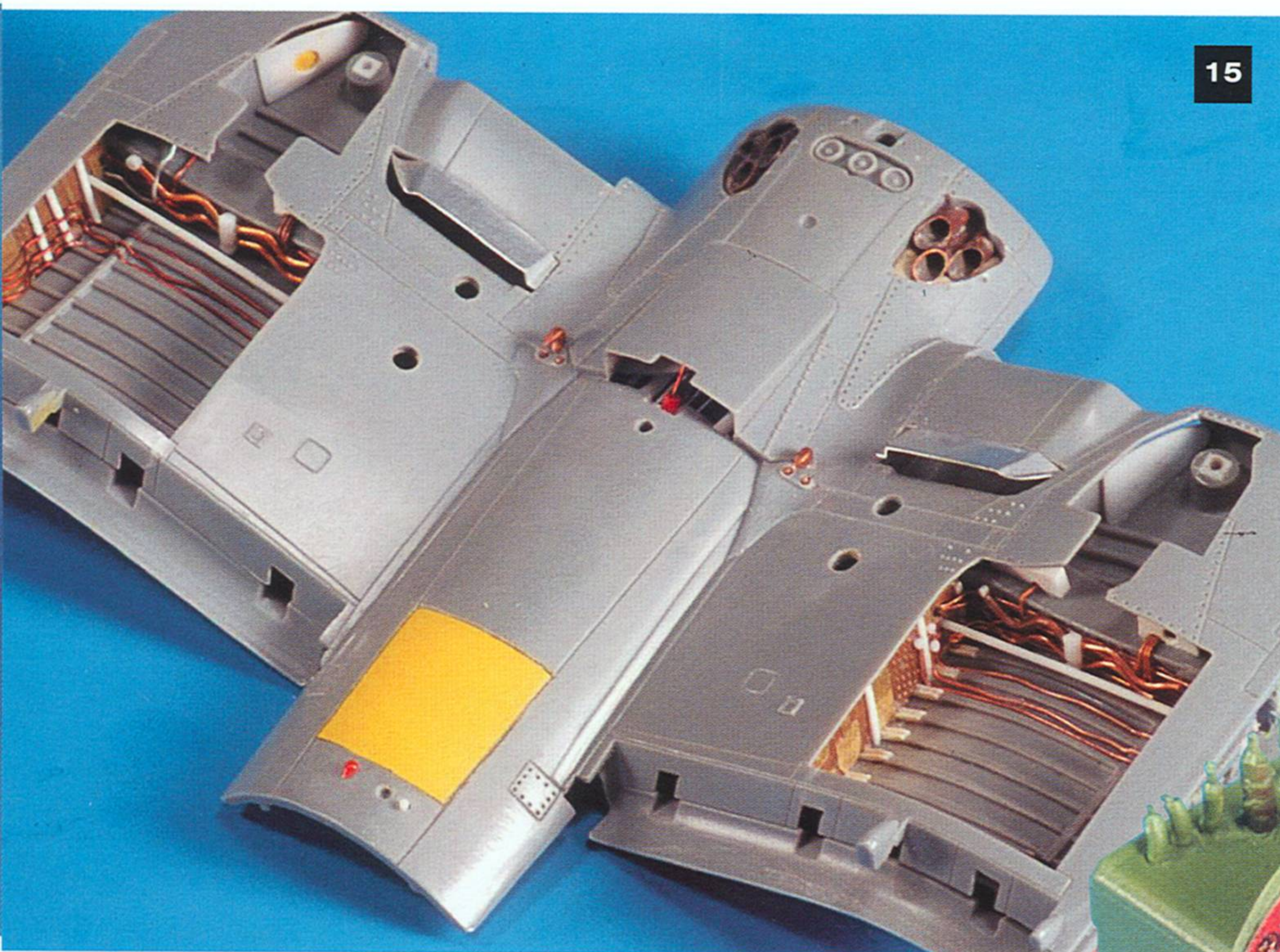
Photo 18 The cockpit sidewalls came from MDC's detail set. It was only necessary to add small ribs and other smaller details from acetate and styrene



sheet. Note the interior of the rear fuselage was filled with epoxy putty to which the arm that will hold the Corsair 'in flight' was attached.

Photos 19 to 21 The whole fuselage interior received a coat of Vallejo acrylic paint, followed by a dark oil wash to give depth and represent dirt. Small details were picked out with various colours, and a few 'chips' from metallic paint were added as a finishing touch.

Photo 22 All the main elements of the cockpit were detail-painted with acrylic colours. Note the different dirt effects spread over the interior, and the red reflection of side lamps on the instrument



panel was achieved dry brushing with gloss red enamel.

Photo 23 The painted engine components. I airbrushed the engine first, hand painted the cylinders with Humbrol Metalcote next, and then gave a coat of Micro Coat Clear to give a black oil wash. To finish, I hand painted the plug leads, wiring and piping and other small details.

Photo 24 The finished engine. The Testors aluminium colour can be polished with a soft cloth.

Photo 25 The propeller.

Photo 26 The completely assembled cockpit.

Photos 27 to 29 Dirt, exhaust stains, fuel

spills, oil leaks, cordite/gun powder deposits and other wear and tear, are depicted with several tones of artists oil colours.

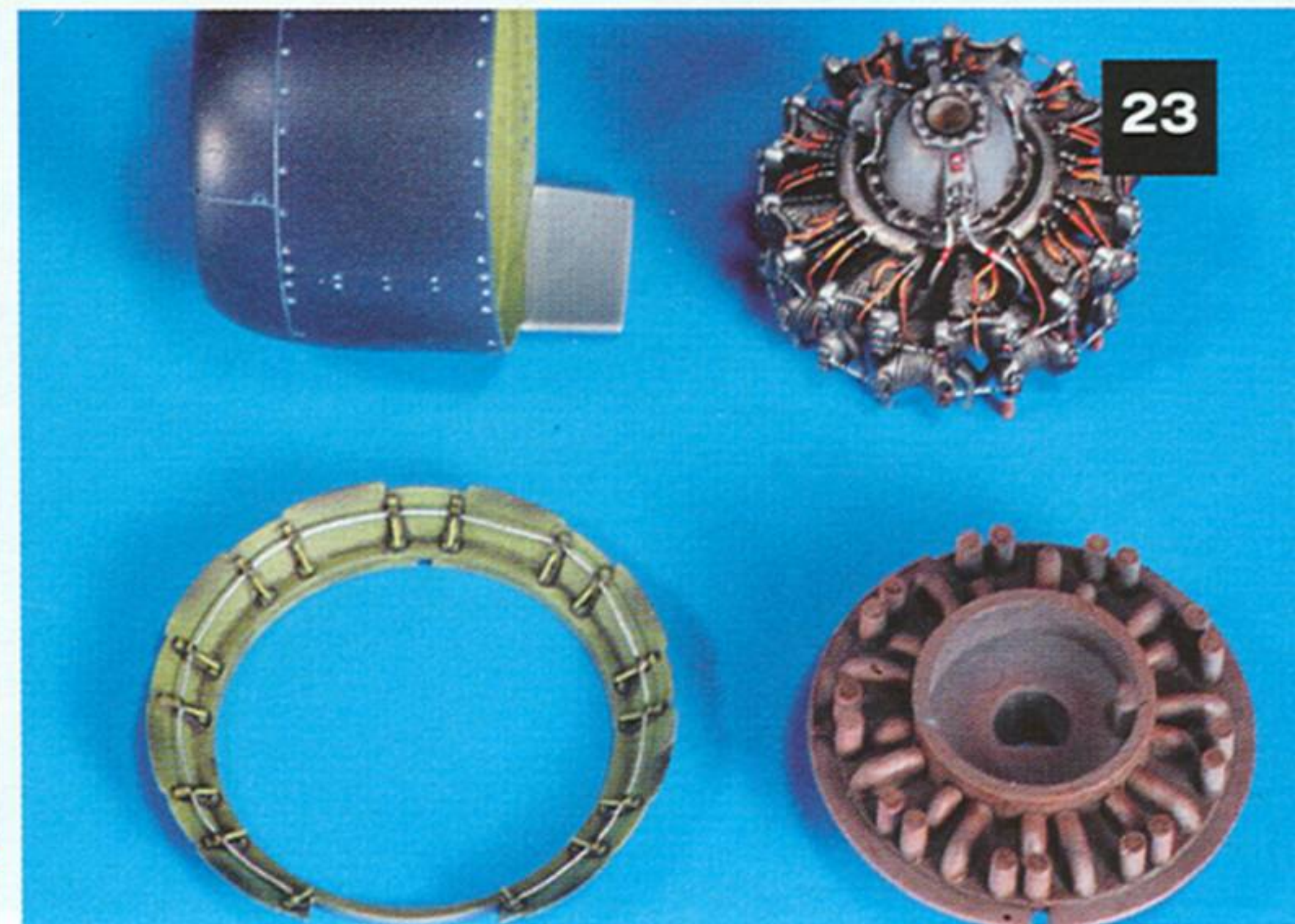
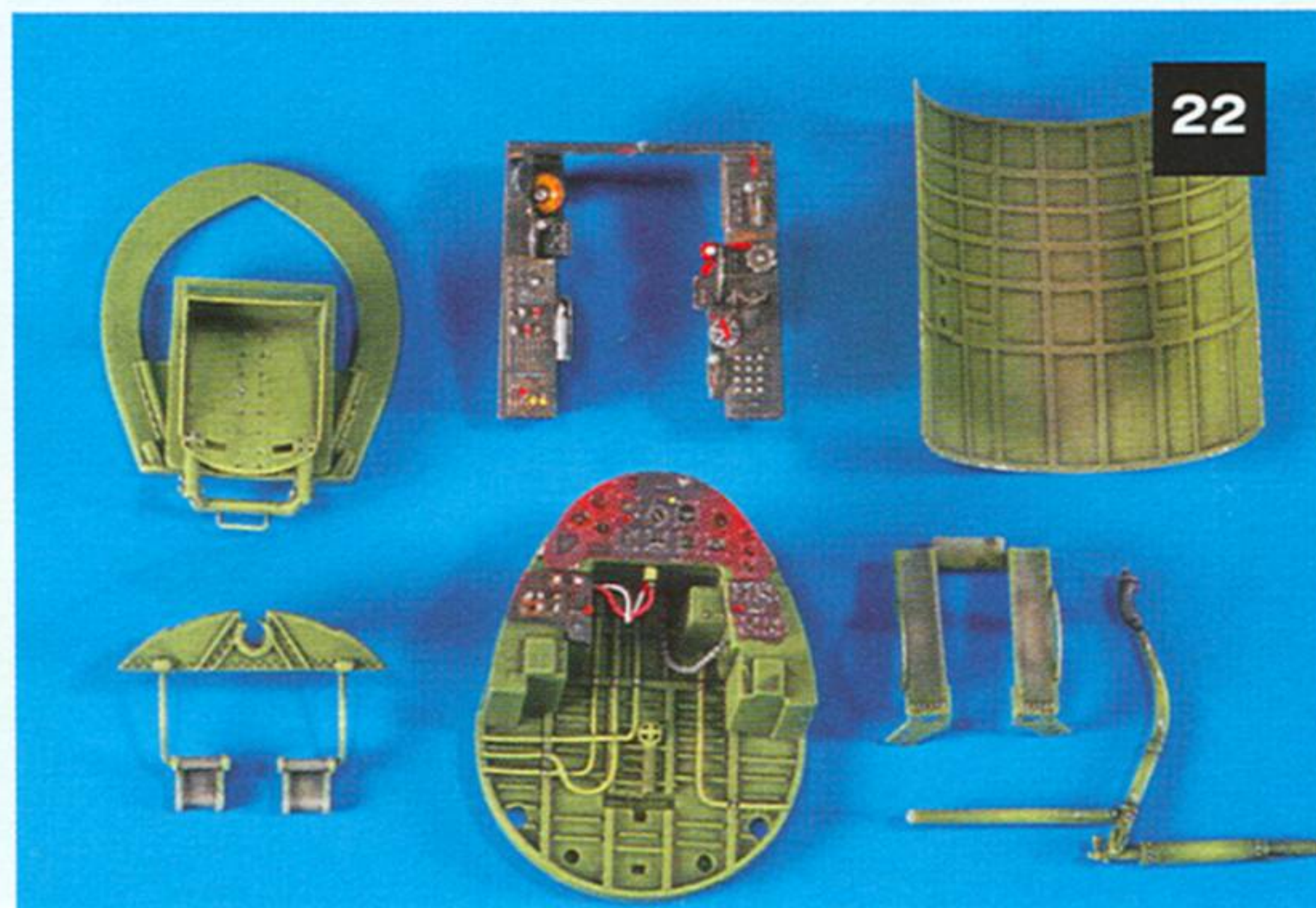
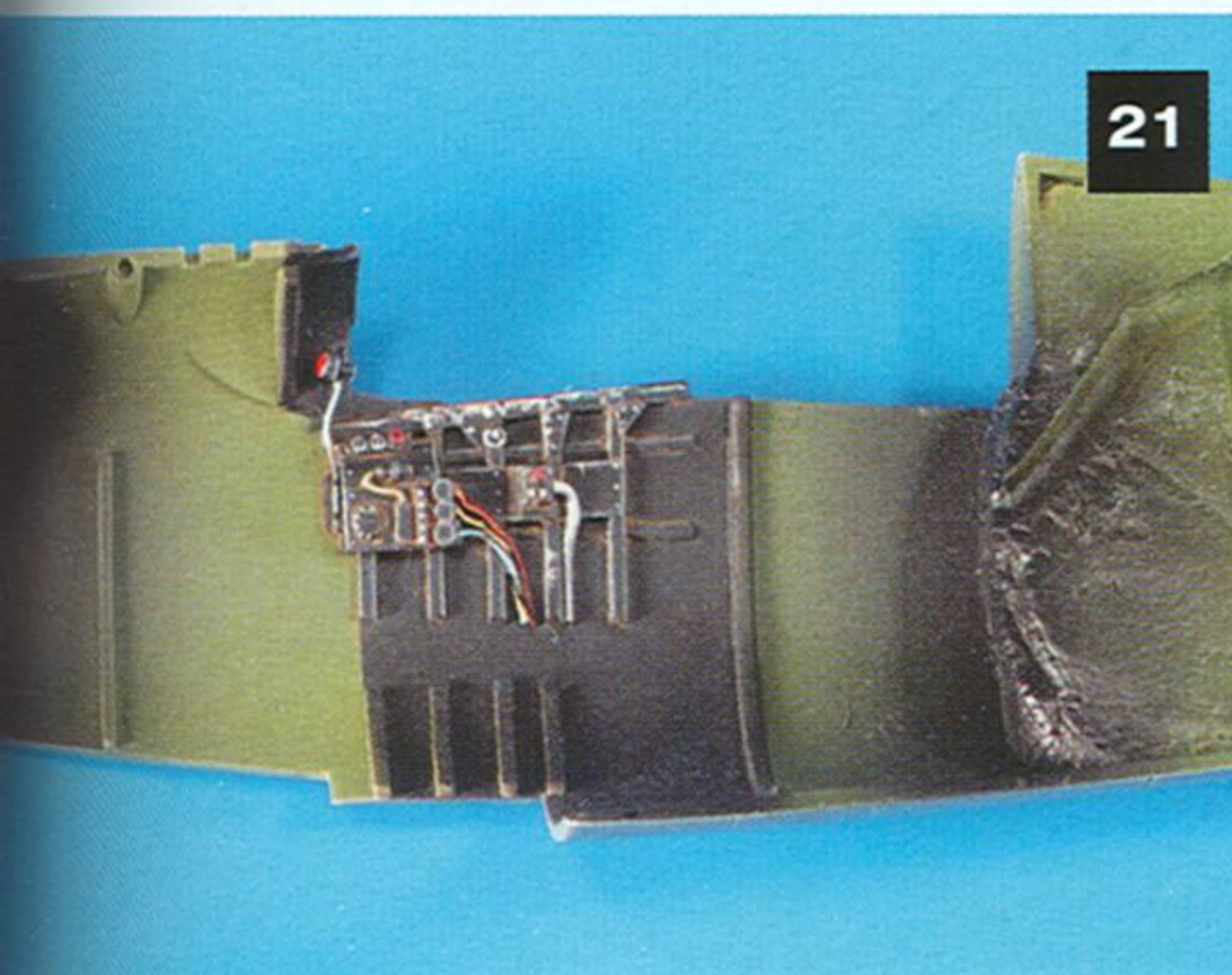
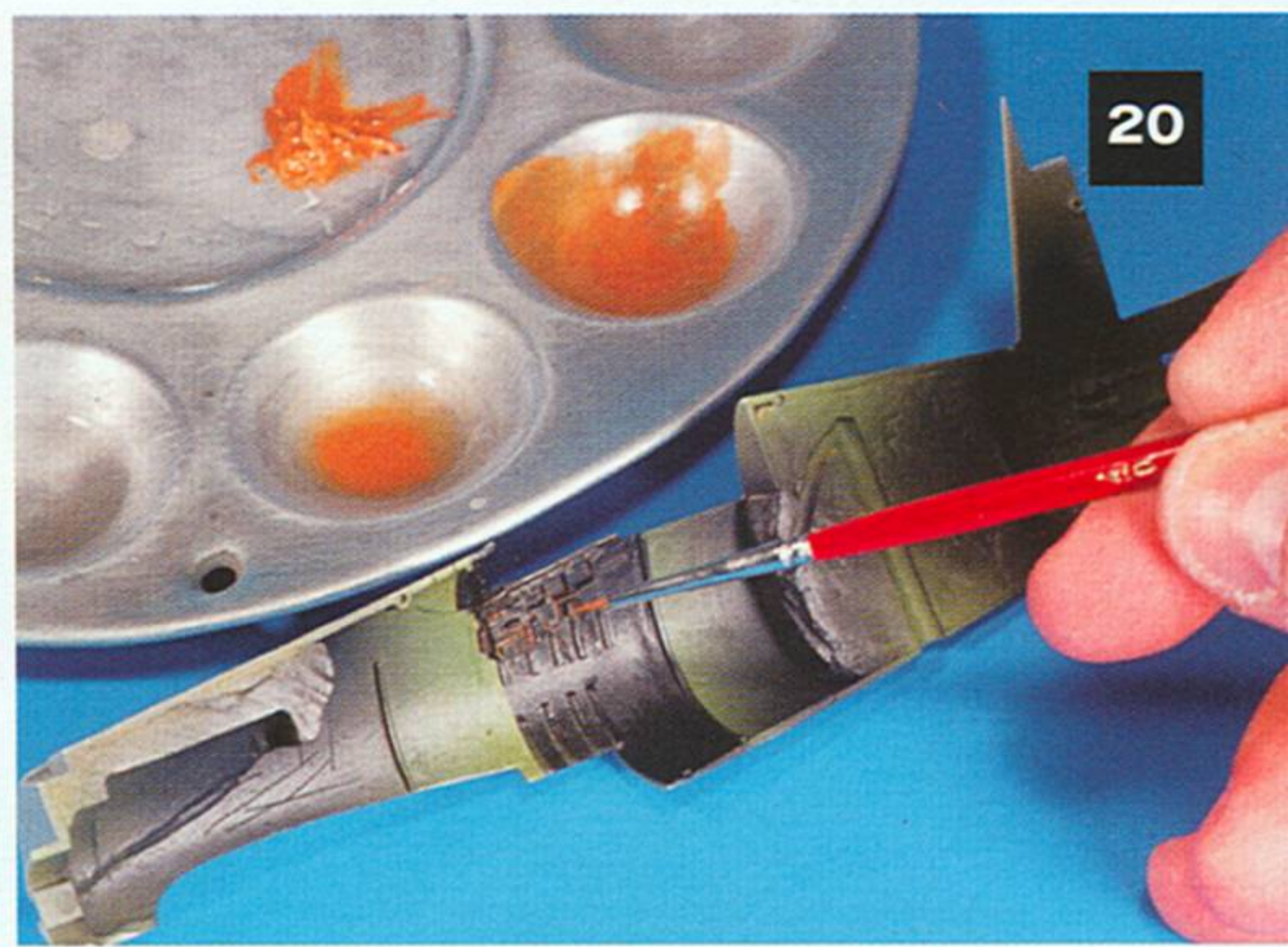
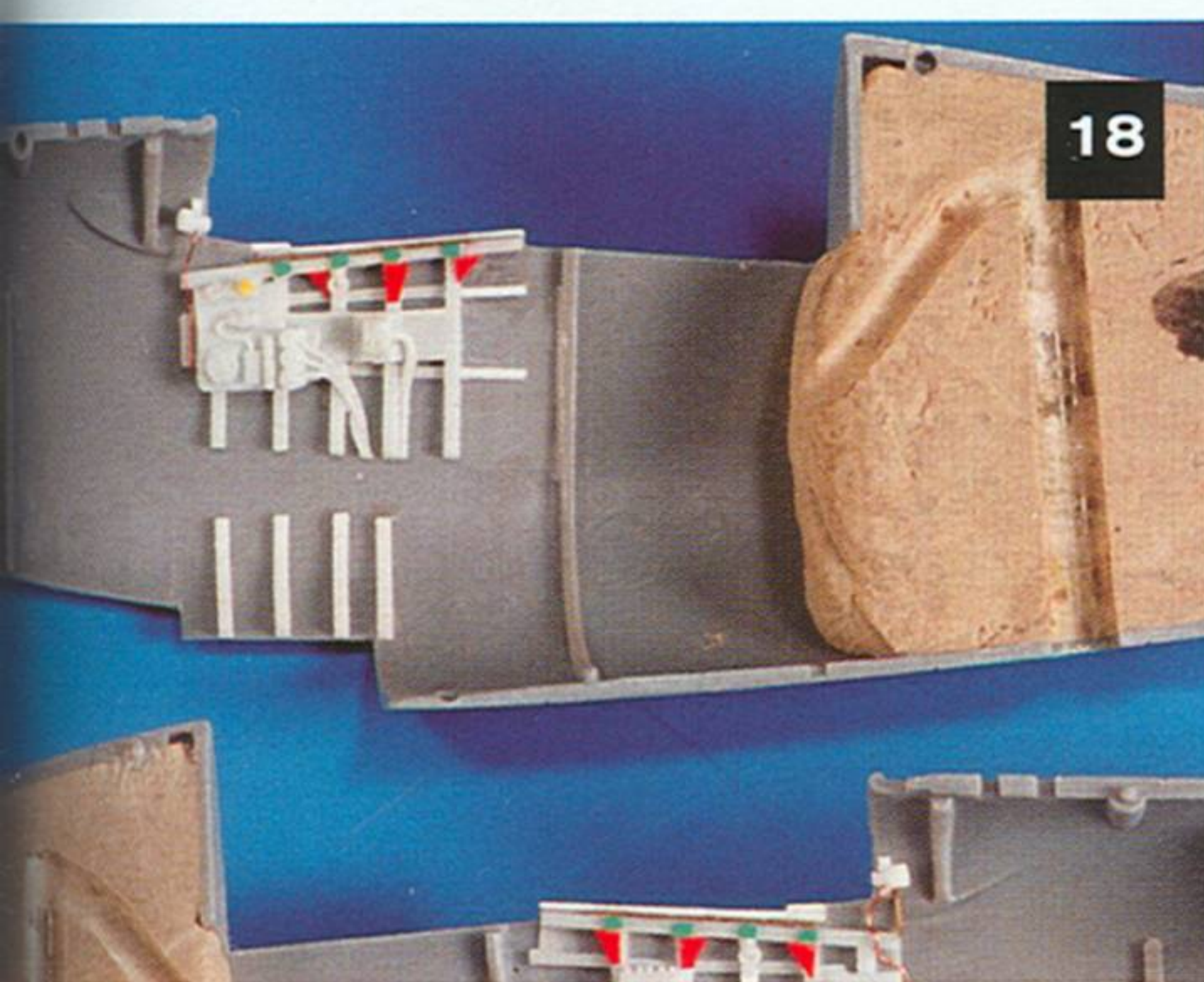
Photos 30 to 32 Wheel wells and the landing gear were airbrushed and given a dark oil wash, with the electrical and hydraulic pipes hand brush painted. The paint job must be just as meticulous as the assembly if you want a realistic finish with a sense of depth and complexity. Metallic areas were applied using the paint taken out from a paint marker. Linseed oil slows down the drying time and allows an even layer of this type of marker's fine pigment.

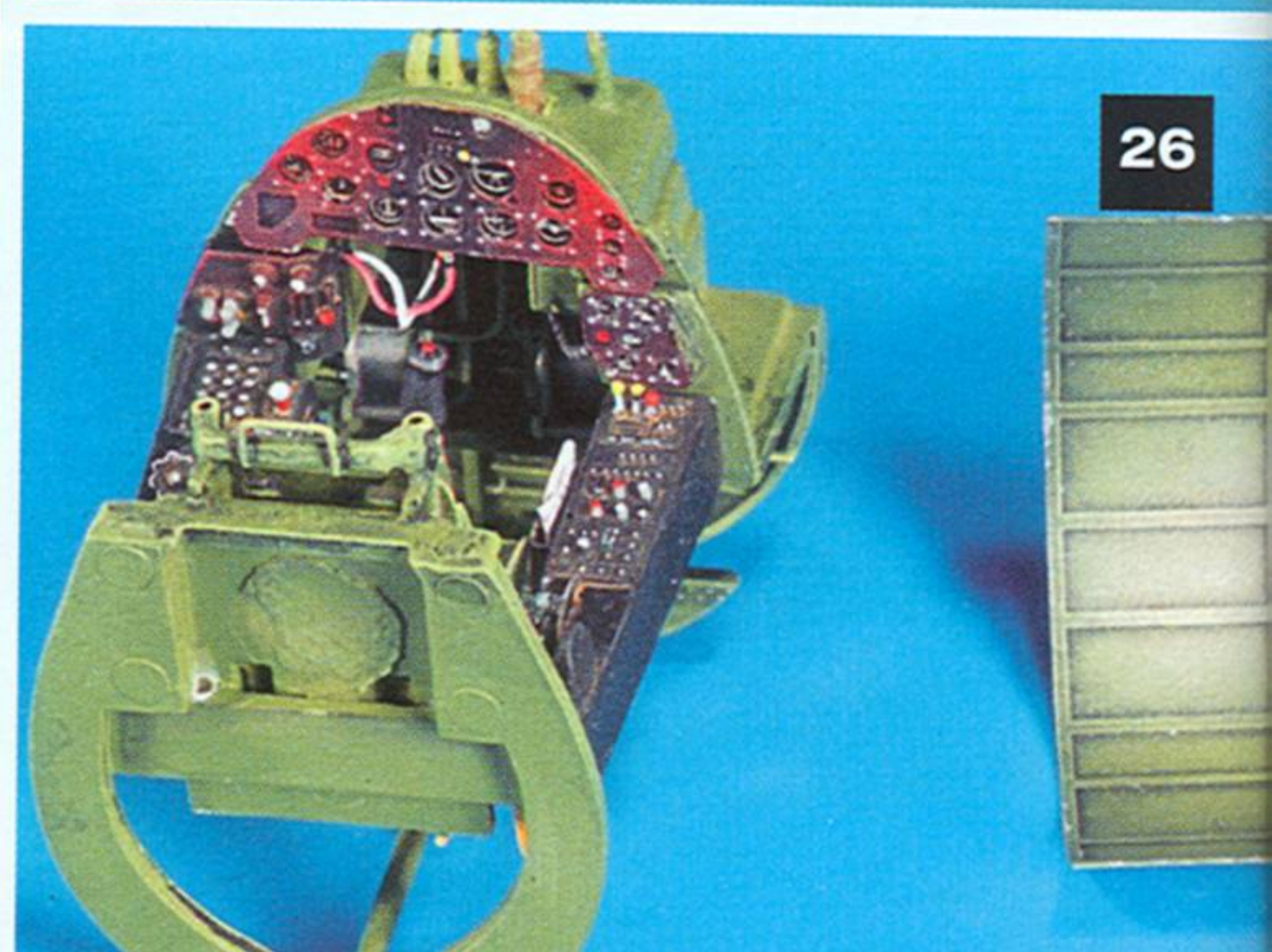
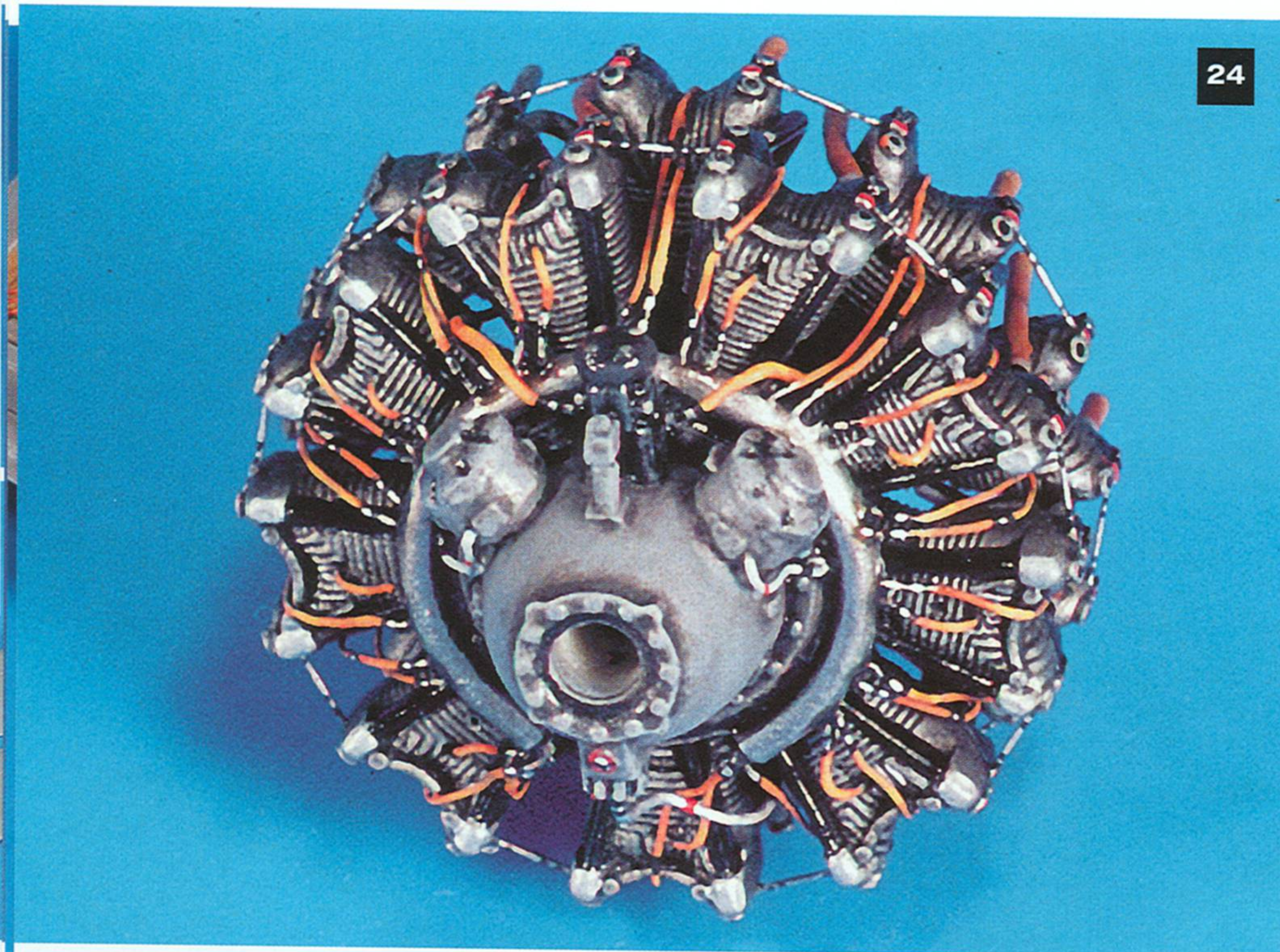
Photo 33 Placement of the electric motor with its connections through cockpit and fuselage.

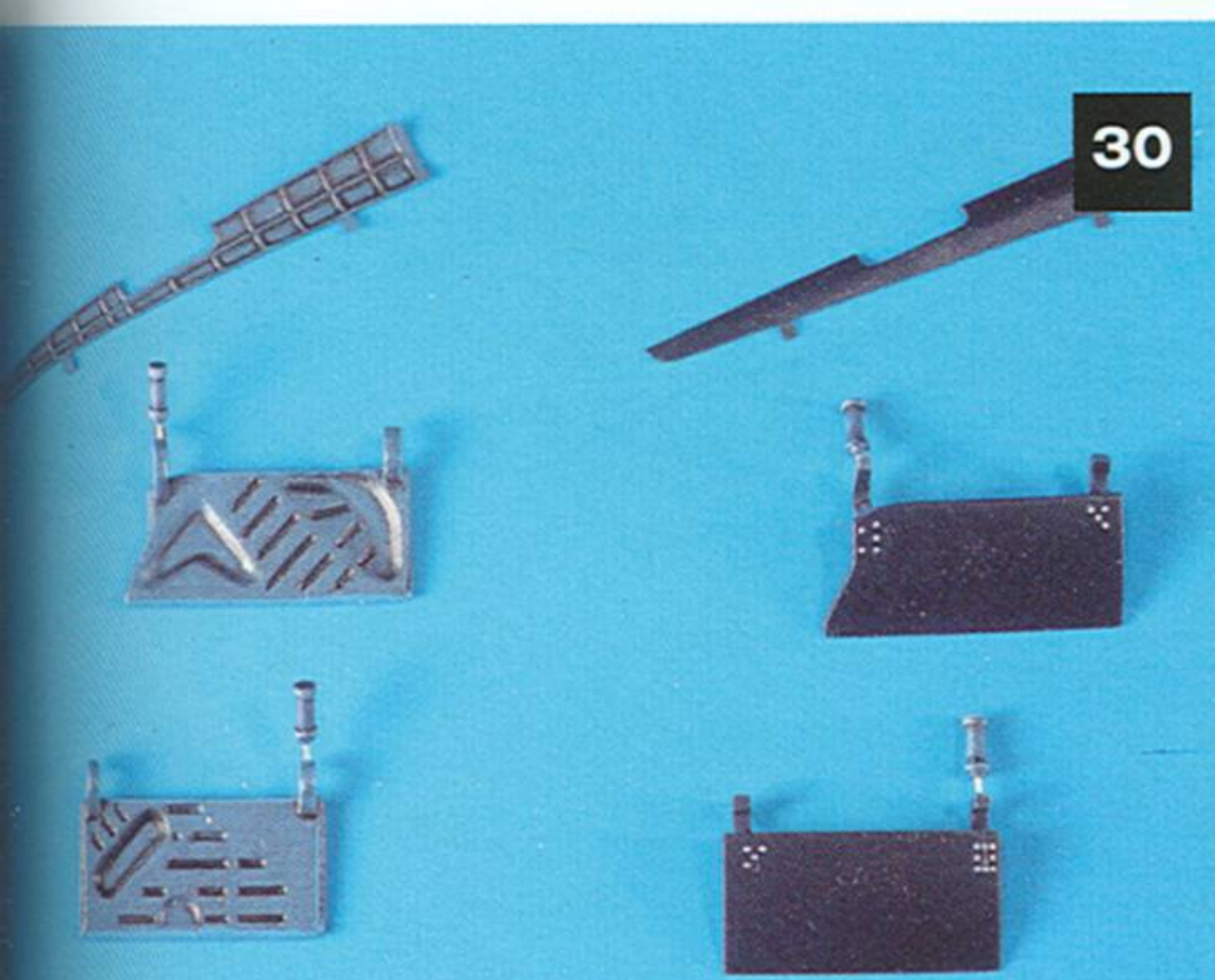
External Painting

Photos 34 to

35 Taking the wings as an example of the painting process, First I applied a thin layer of Humbrol 189 as a base colour. Then, using a mixture of Vallejo acrylics, I sprayed various panels in lighter shades to represent faded paintwork. Sometimes this process cannot always be created by freehand airbrushing and the use of masking tape and templates are necessary, especially to enhance prominent structural areas and shapes such as control surfaces. Once finished, I gave the model an overall coat of Micro Coat Clear to protect the paintwork. Micro Set and Micro Sol were fundamental elements in making the decals conform to







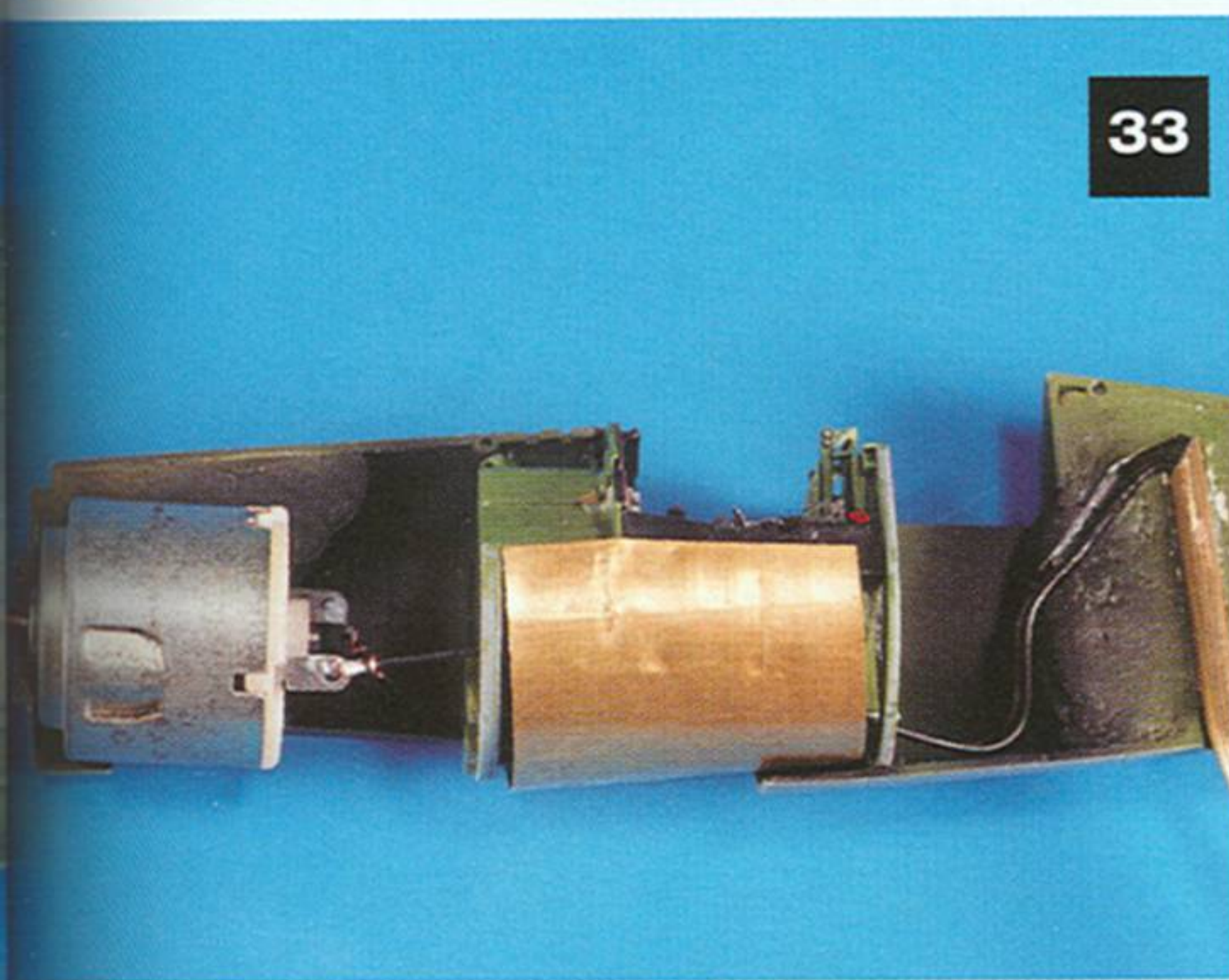
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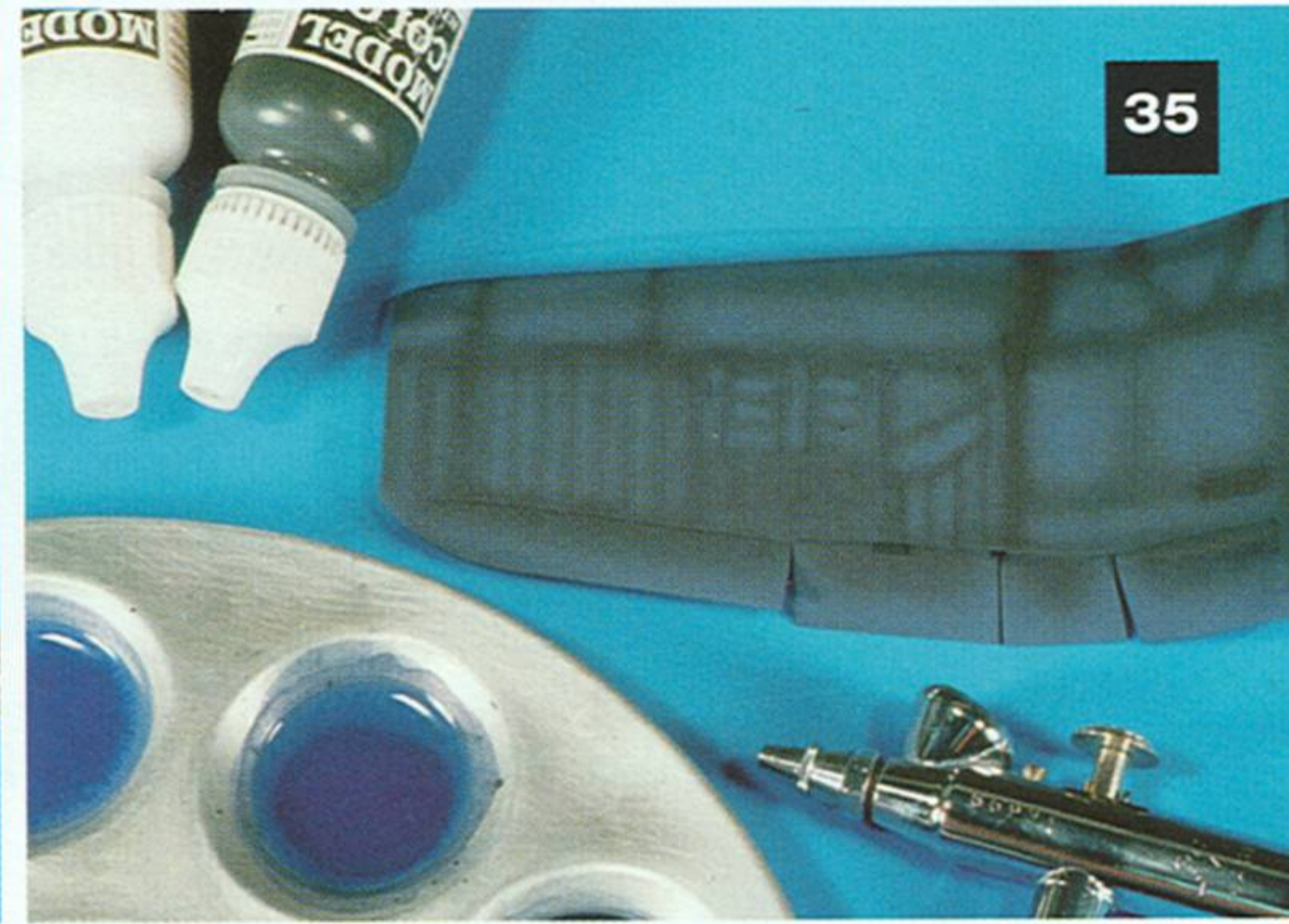
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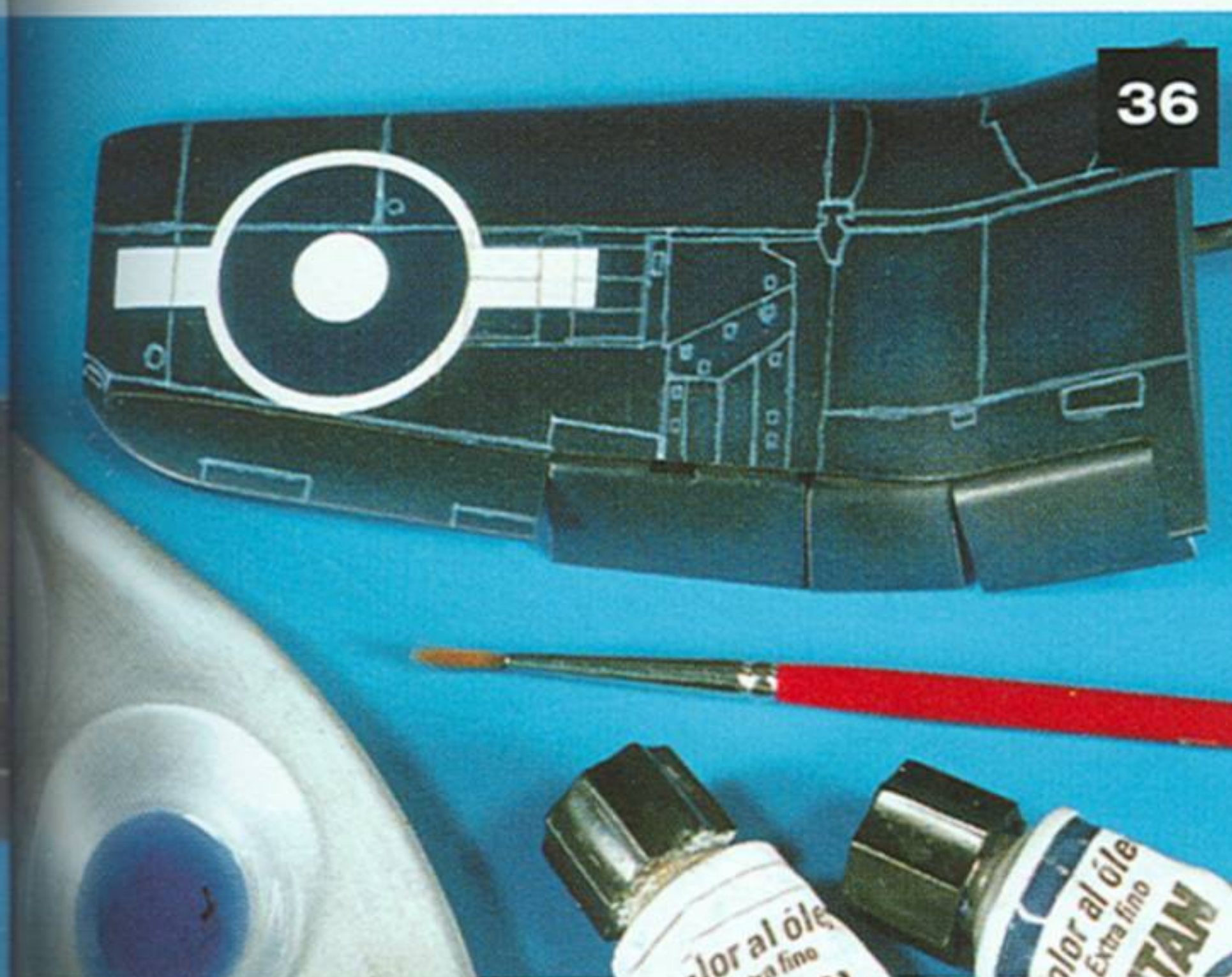
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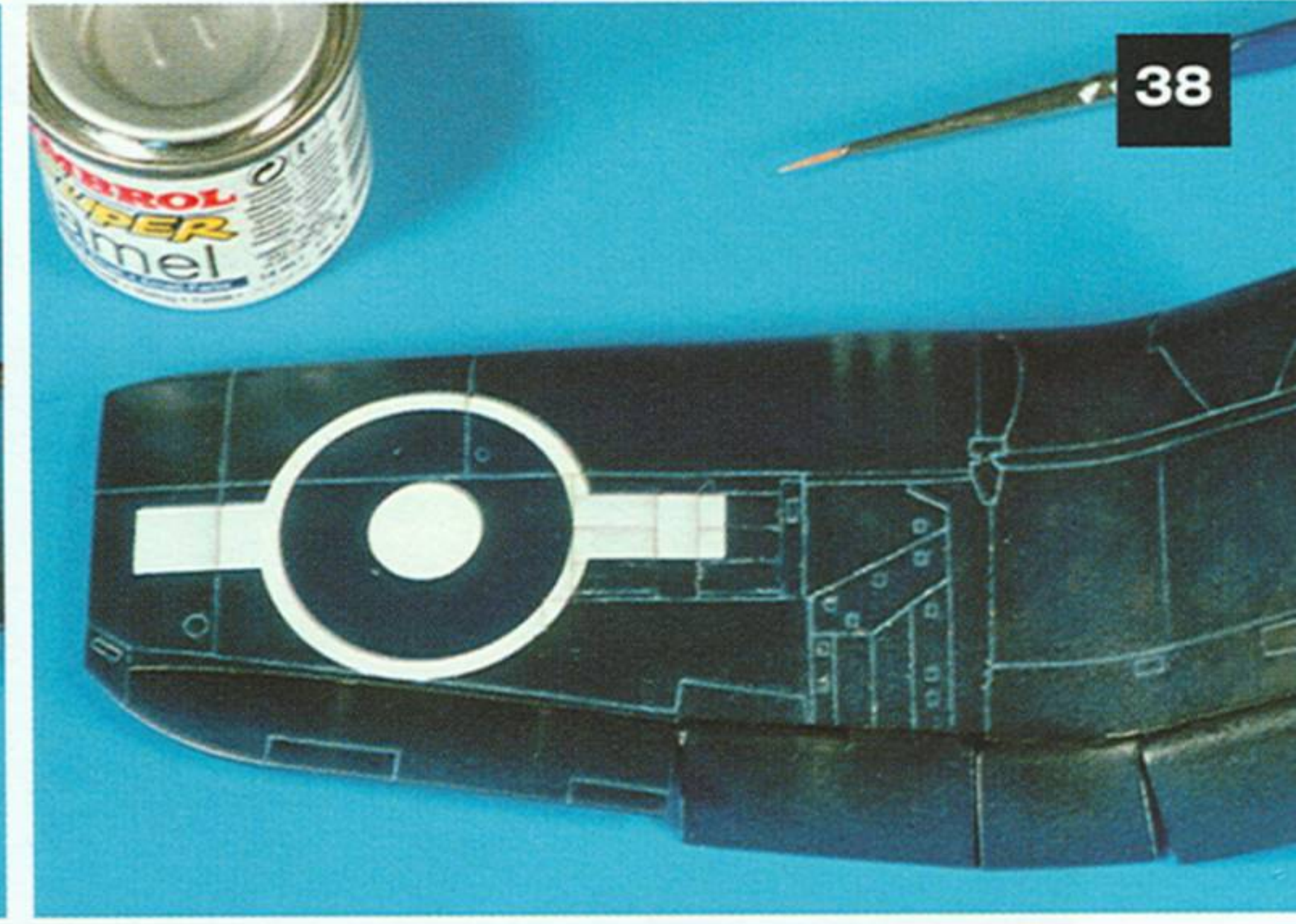
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37



38

all the various surfaces.

Photo 36 The panel lines were accentuated with white and blue oil paints, the excess paint wiped off the lines with a brush soaked with clean solvent. I then Airbrushed with Holbein inks, (artists acrylic semi-transparent inks for airbrushing), to enhance the panel lines. I used Tamiya masking tape and Post-It sheets for masking.

Photo 37 The effects of weathering were imitated with fine airbrush lines in brown tones.

Photo 38 Fine scratches and chipped

paint were represented with Humbrol chrome silver, along the panel lines. Rivets were airbrushed on. This was achieved using a template made of transparent acetate, perforated with a punch at the appropriate distances. At first sight, it seems that this technique requires a lot of work, but it is not that difficult. The most difficult process is to accurately 'drill' the template which takes time. I used transparent acetate because it is quite flexible and it will conform to most of the curves around the fuselage and wing surface. It can be kept in place using Tamiya masking tape. Transparent acetate is strongly recommended because you can see where you are fitting it which is a great

help to placing it in the correct position. I use acrylic paint for applying the rivet heads, which allows the template to be cleaned with alcohol and a soft cloth after every time I use it to keep it clean and ready for painting the next line of rivets.

The photos also show the worn away paint on the wing leading edges. Finally the machine gun ports were protected with the characteristic red adhesive tape to avoid ingestion foreign objects during take off.

B25G

The B-25G was basically a B-25C/D bomber variant, with the original glazed nose section replaced by a new, shorter, metal nose, housing a pair 0.50 inch machines guns and a 75mm M-4 cannon. Following the success of in-service modified B-25Cs and Ds with multiple machine gun 'strafer' noses, the B-25G was specifically designed for the ground attack role. The first test flights were undertaken in late 1942, which included air-to-air firing of the cannon and the new sub-type entered service in early 1943, in both the Pacific and European Theatres. The B-25G was later replaced by the B-25H based upon the improved B-25J bomber version.

The Accurate Miniatures kit

Released a few years ago, this kit is one of the best representations of this classic aeroplane in this scale. Moulded in an easy to work with soft grey plastic, nothing is missing in this kit, especially on the inside where even the Elsan toilet is included! The instructions are well done and complete -

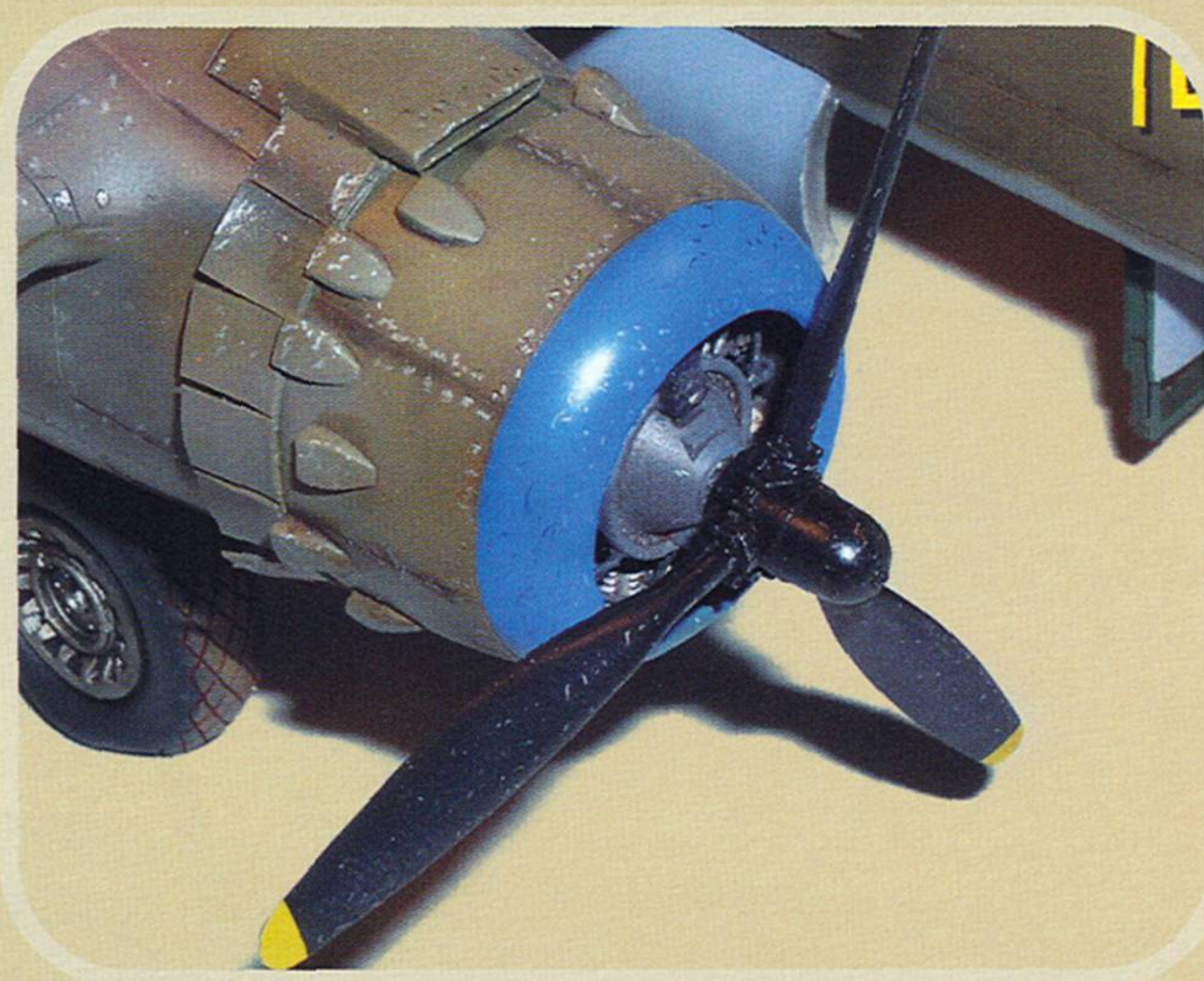
obviously the people at AM responsible for this kit undertook a great deal of research and have done a very good job. The kit even includes a specially designed nose weight to avoid having a tail sitter and pre-cut masks for the canopy!

The external surface detailing is really well done, but a fair amount of work is needed to build this model, and you will discover a few traps for the unwary along the way, but nothing impossible - the proof is that I have been able to do it! Two schemes are available in the box - one in US Navy/Marine Corps markings and one for an aircraft based in the Pacific Theatre. So let us start!



Franeck Oudin builds the Accurate Miniatures kit



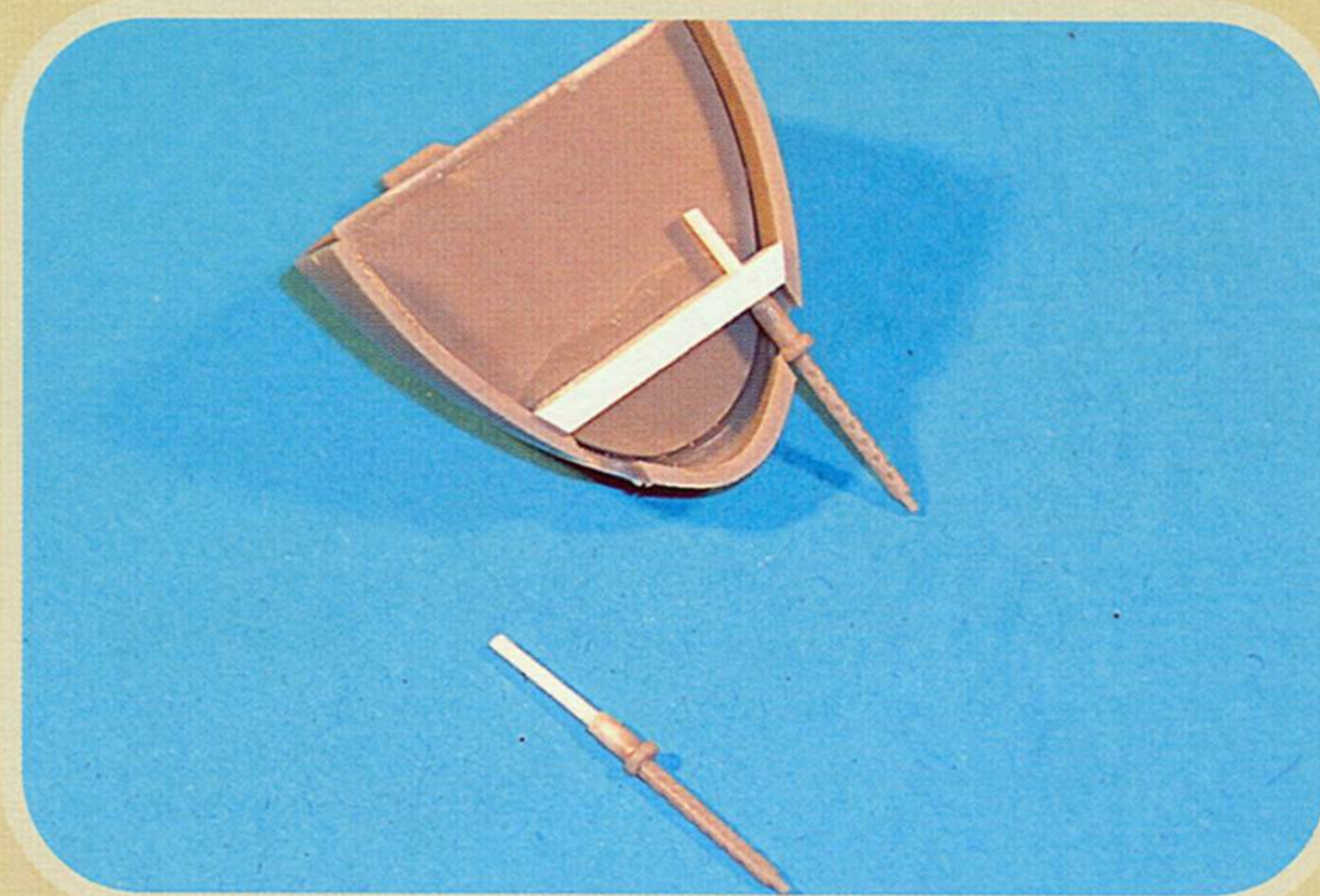
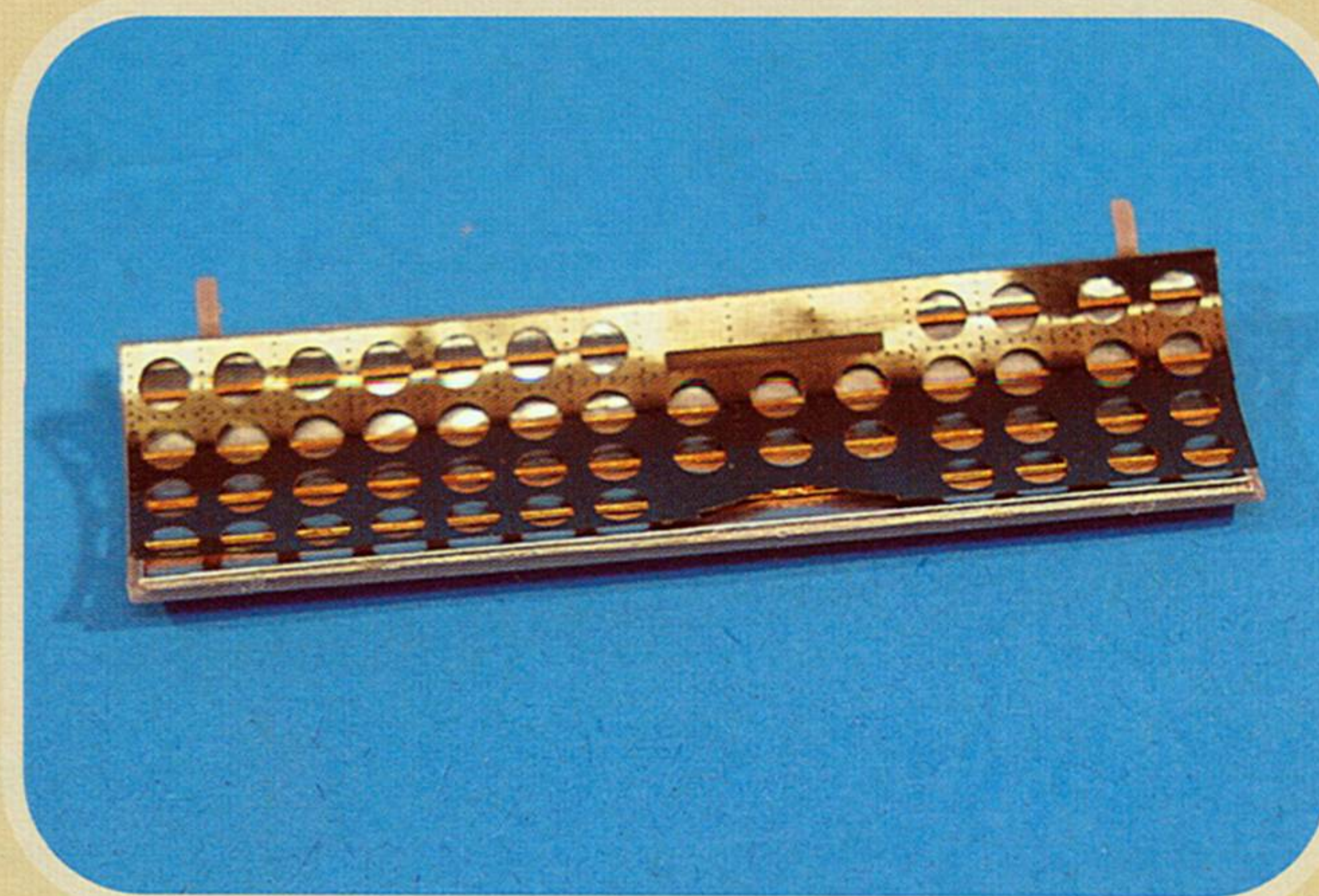
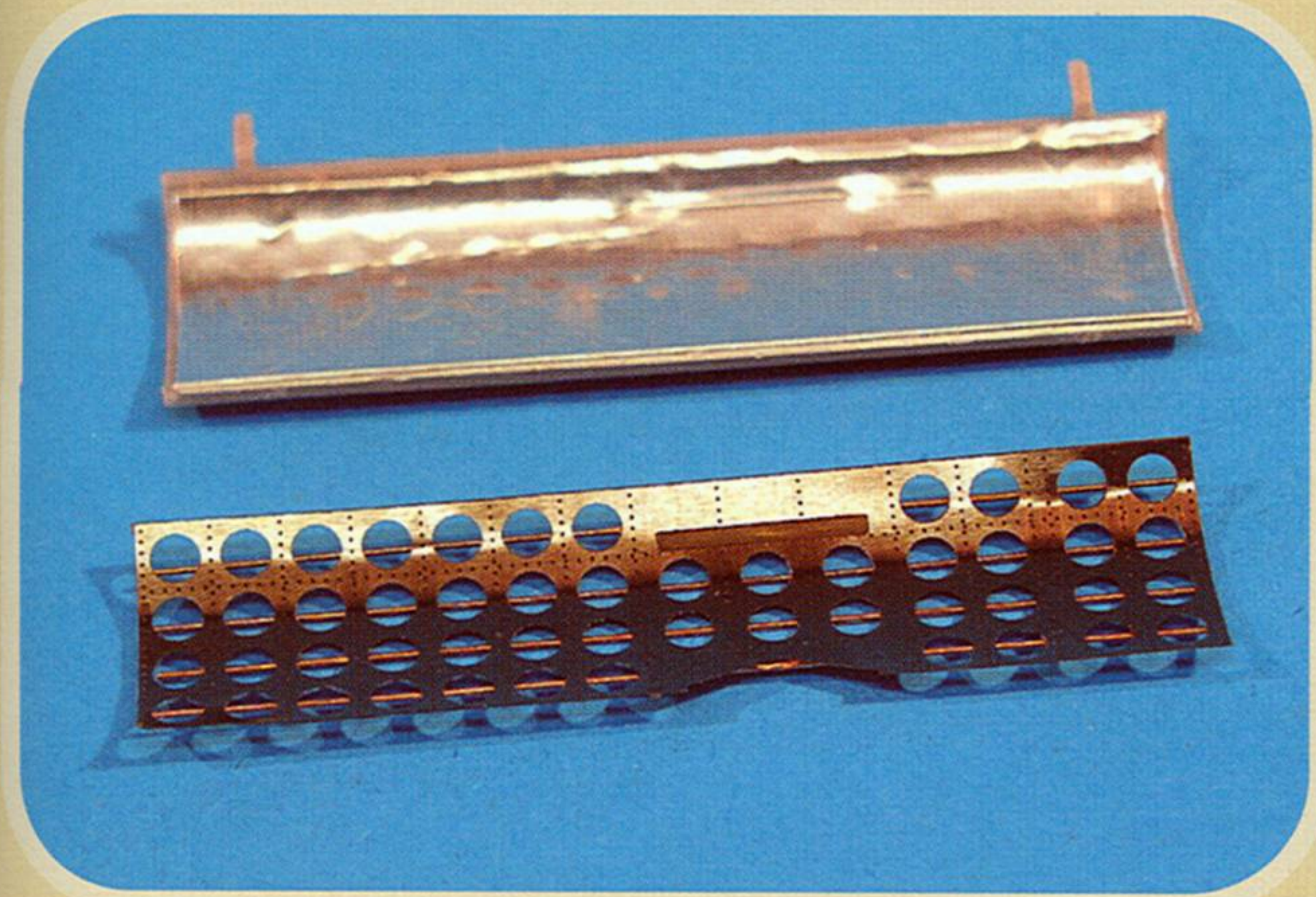
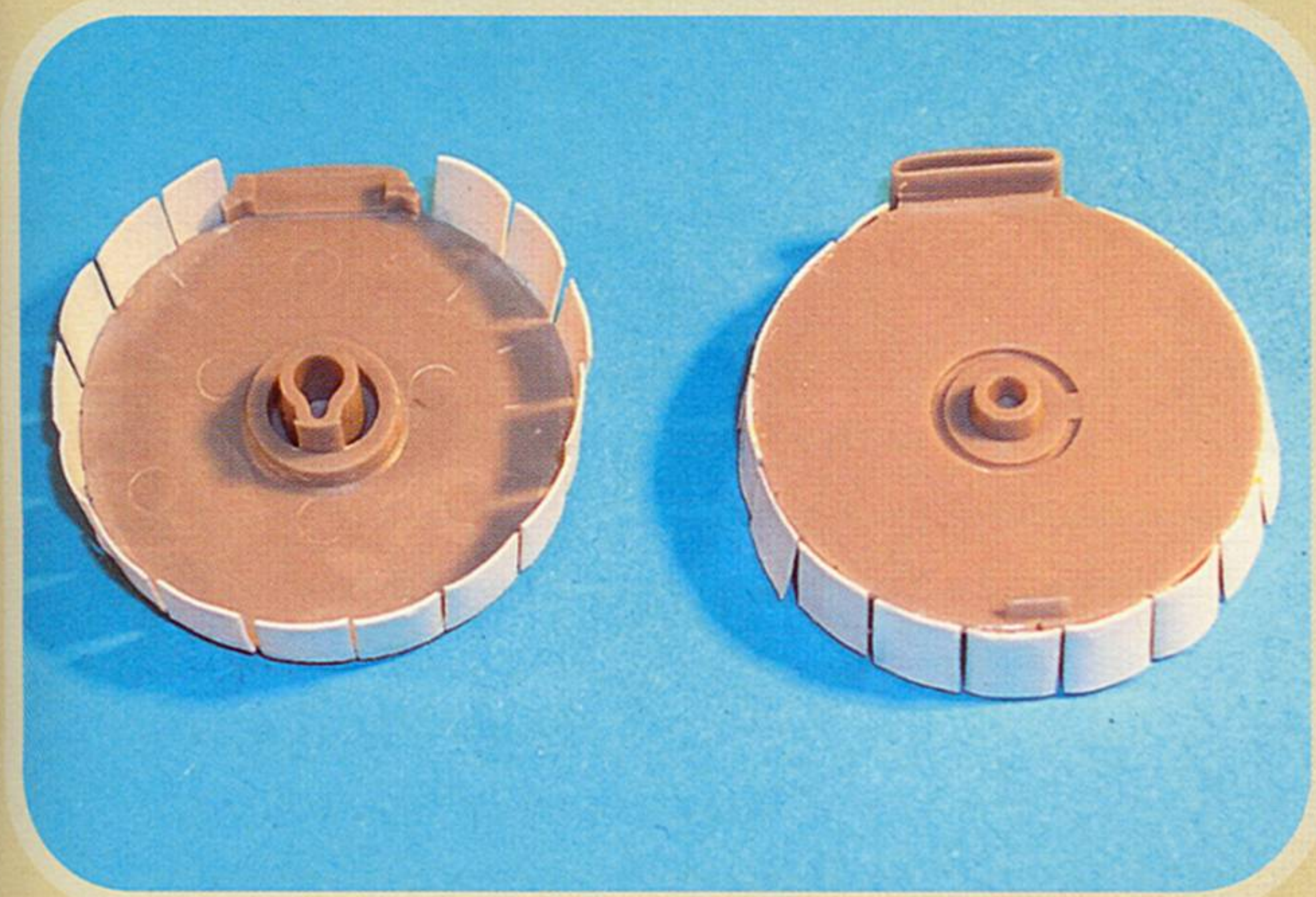
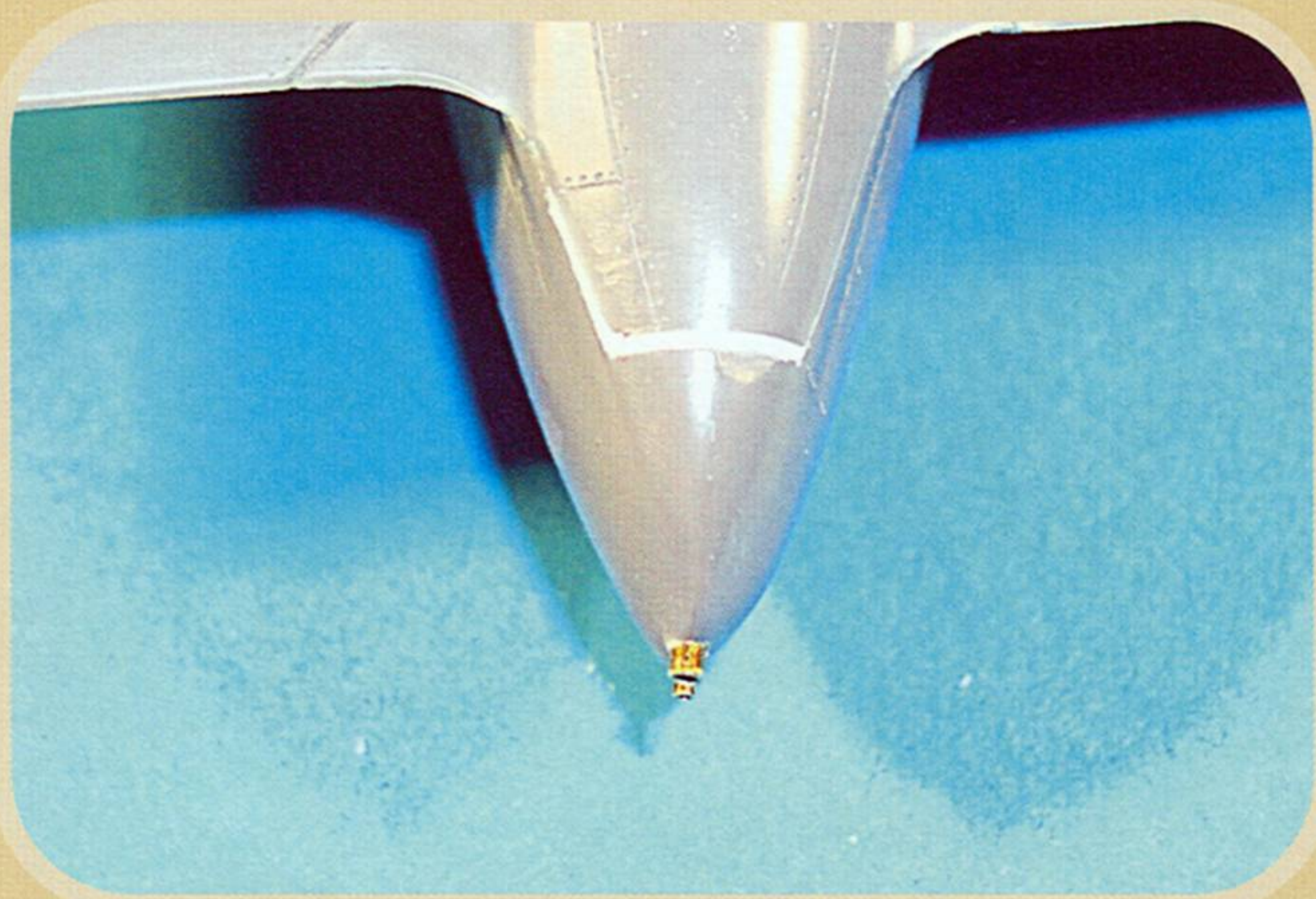
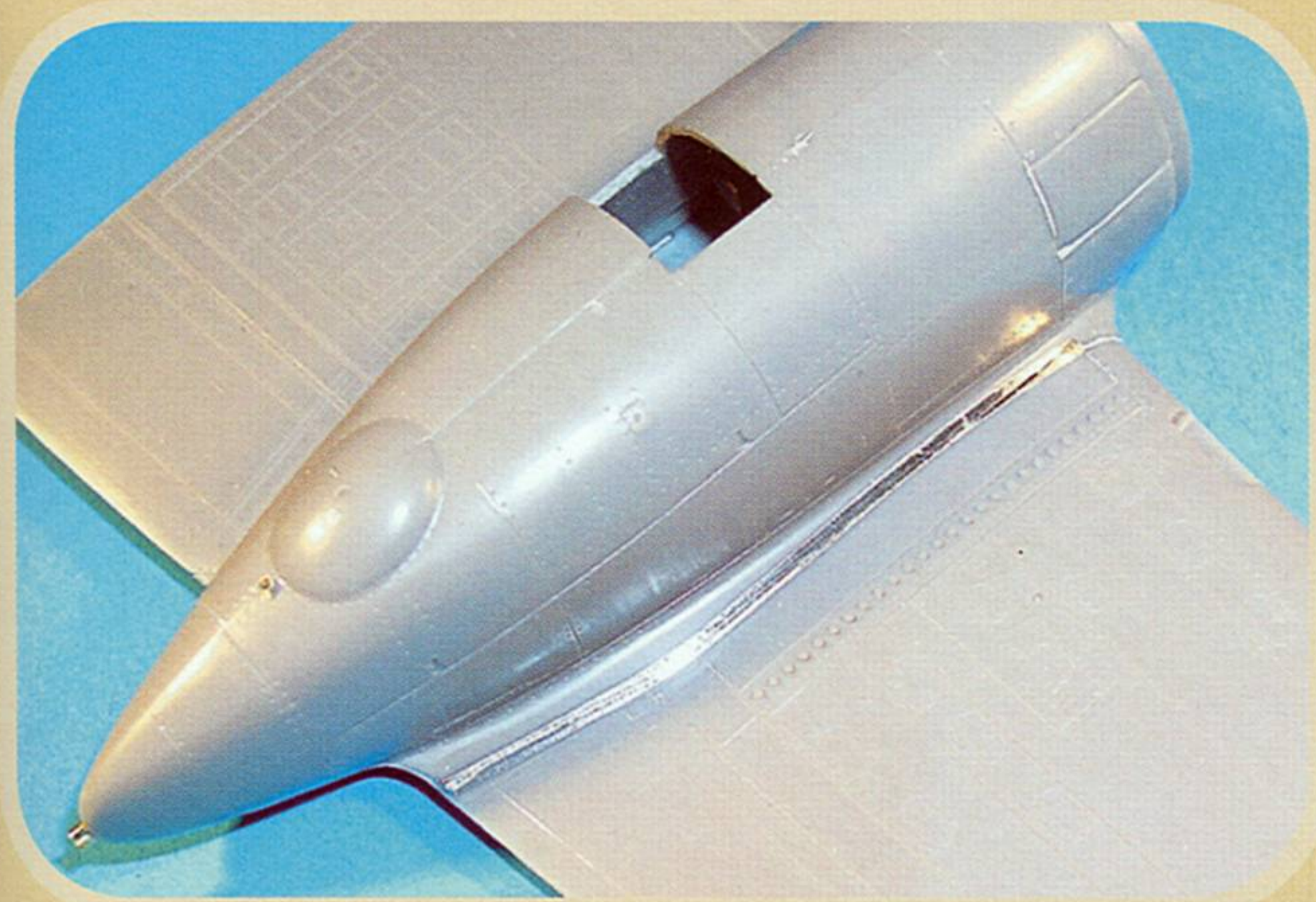


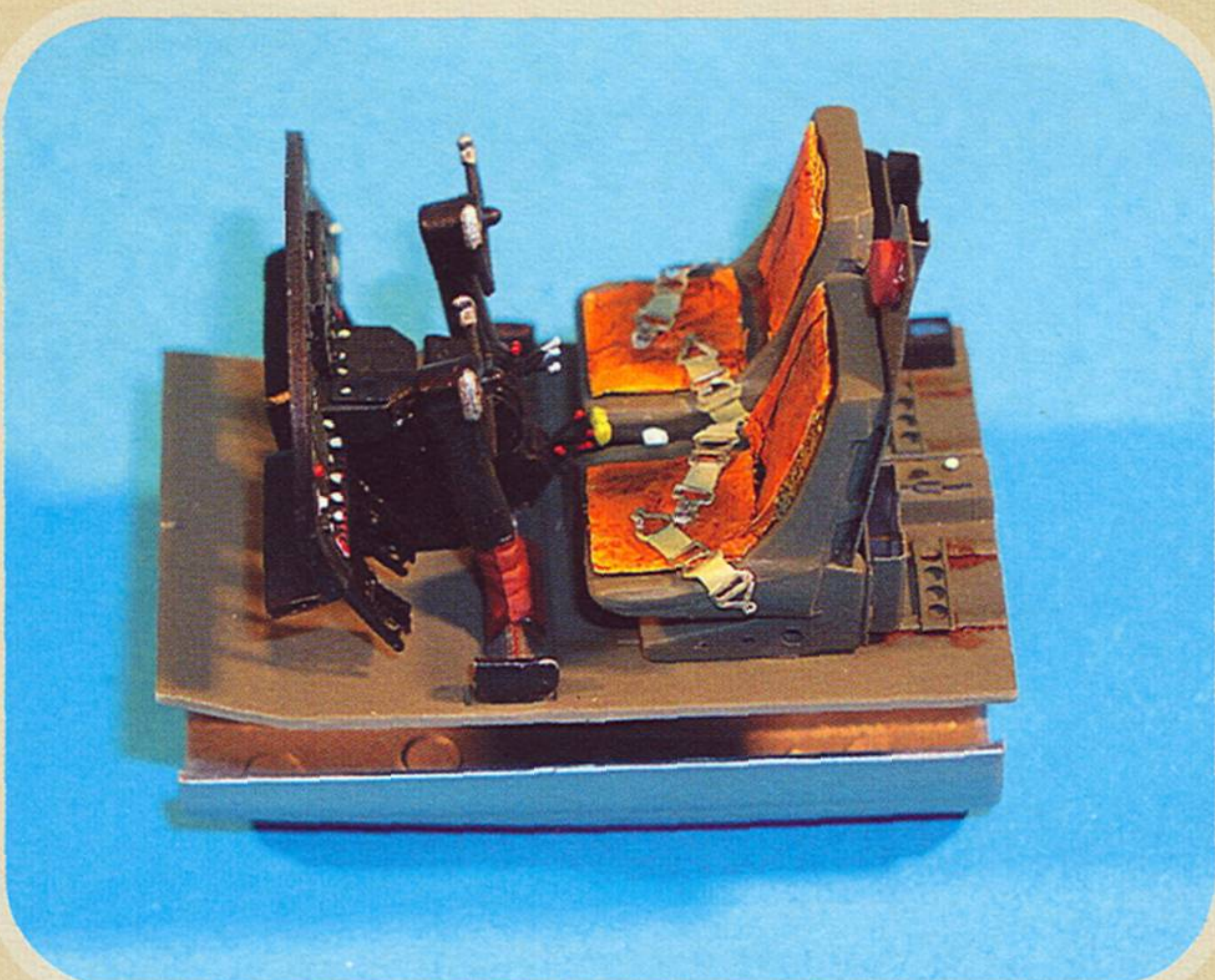
Fuselage

The inside of the fuselage was painted in three different colours. The cockpit area was painted Bronze Green FS 34092, Gunze Sangyo H-302; the bomb bay was finished in Aluminum, and the rear of the fuselage was sprayed in Zinc Chromate, Tamiya XF-4. After a coat of gloss varnish was sprayed on, an oil wash was applied to add some depth to the paint. The cockpit was further detailed, with additional knobs and controls etc, and the Eduard photo etch set 48-260 was used for the seat harnesses. The instrument panel was painted black and all the instrument dial faces had instrument decals from the MDC range for German aircraft applied - not exactly accurate but the

resultant effect looks fine! Finally the gun sight glass was replaced with very fine transparent plastic sheet, It was now time to work on the bomb bay, which was detailed with the Eduard photo etch set 48-262 originally designed for the Monogram kit, but it can be used for this kit too. An oil wash was again applied to weather this area of the aeroplane. Then the rear of the fuselage was painted, which includes the the radio compartment, fire extinguisher, side hatches, life raft, and the Elsan toilet - I told you nothing is missing! - simply follows the instructions as all the colours are indicated.

Do not attach and glue the nosewheel landing gear at this

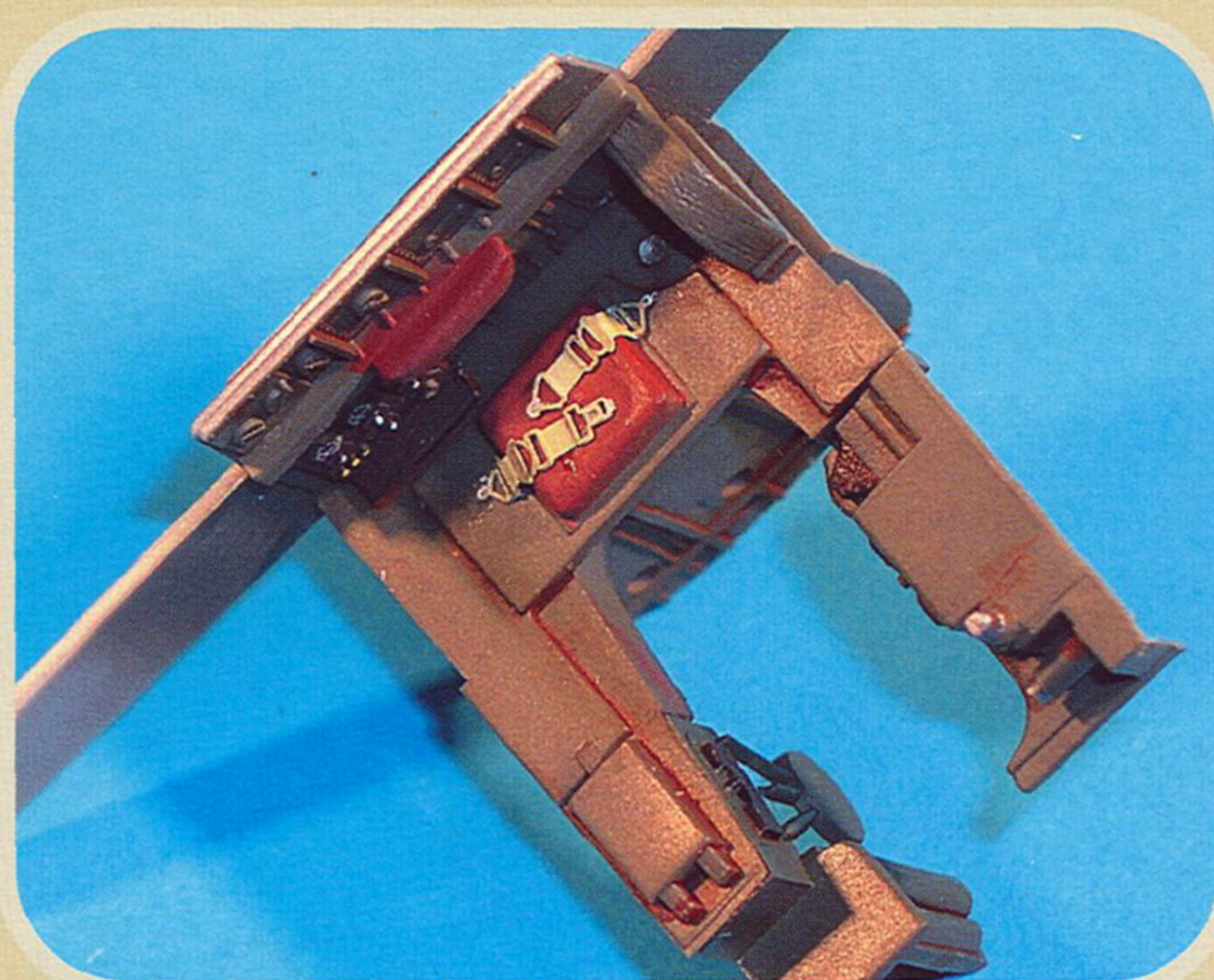




stage - it makes handling of the model difficult increases the risk of breaking it off! However DO attach all the windows from the inside, but make sure they are well fixed in place - whilst I was handling the model during construction one of the windows fell inside, after the fuselage halves had been joined, and I spent ages trying to fix it back into position - from the outside!

The mid-upper turret was fitted in place, with some additional detailing to the column, and the floor and access doors were replaced with photo etched parts. Once all these elements were fixed in place, painted and weathered, it was time to close the fuselage halves. I made one or two dry fitting tests first as lining everything up correctly makes it really tight! The fuselage was actually glued in two stages - once on the top and once on the bottom, as you can see in the accompanying photos.

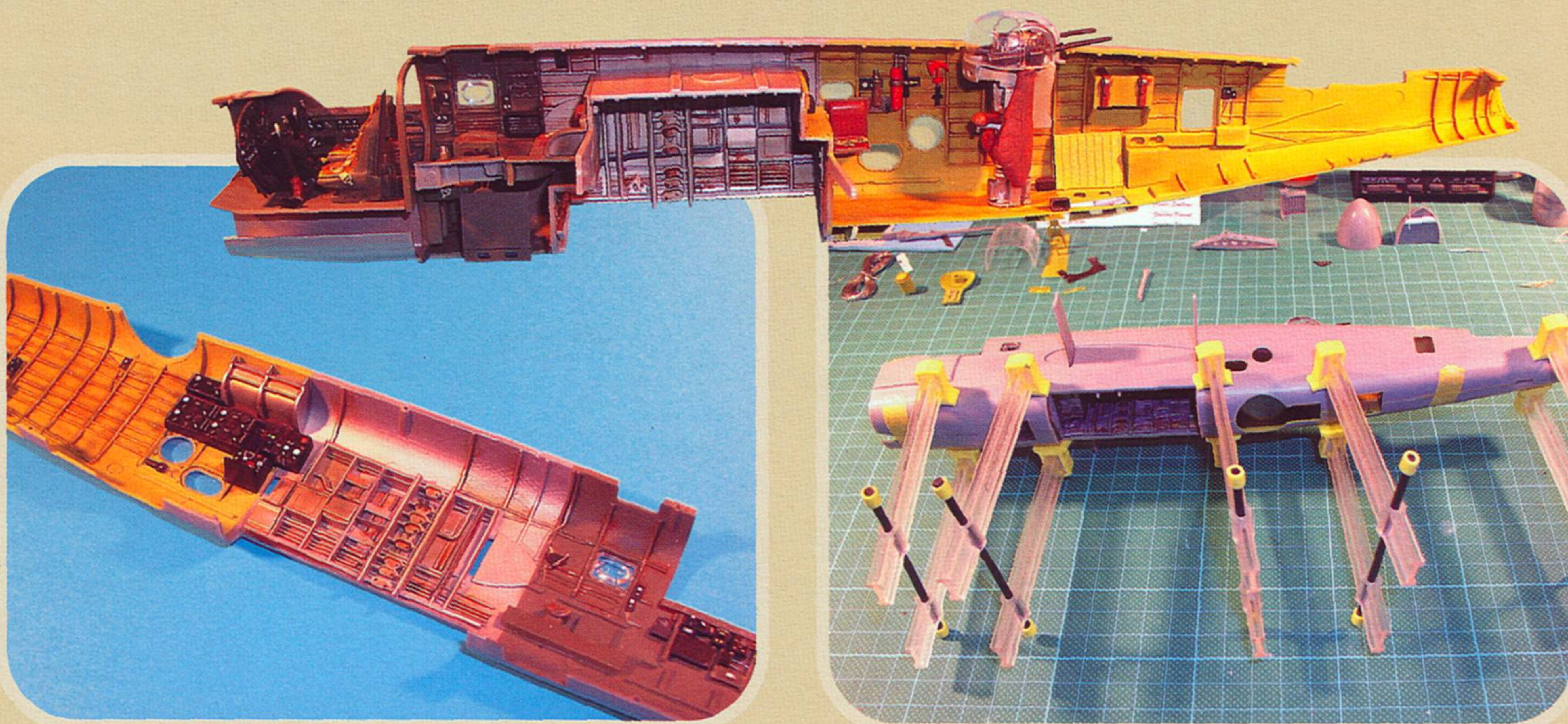
Some additional small lead balls were glued inside the nose and narrow plastic tubes were glued into the nose to guide the



machine guns which were fitted at the end of construction and painting. The 75mm cannon barrel was replaced with a scratchbuilt aluminum tube machined on a lathe. The nose was then glued in to place and the seam filled with putty create a perfect join with the fuselage. The control surfaces were attached as was the astrodome and two bare metal foil pieces on the top fuselage to simulate the armour plating around the mid-upper turret. The canopy was glued into place and the front join covered with a small piece of bare metal foil. All the transparent parts were now masked off. In this instance I did not use the pre-cuts masks, as they have tendency to not stick well over the curved parts of the canopy, so I used Tamiya masking tape instead.

The wings and engines

The wings need less work. Once glued together, the leading edges were sanded smooth and the landing light recesses painted in gloss black. When dry, the transparent parts were glued into place and adjusted to fit. To be certain not have a 'tail-sitter', I added even more weight, this time in the rear of





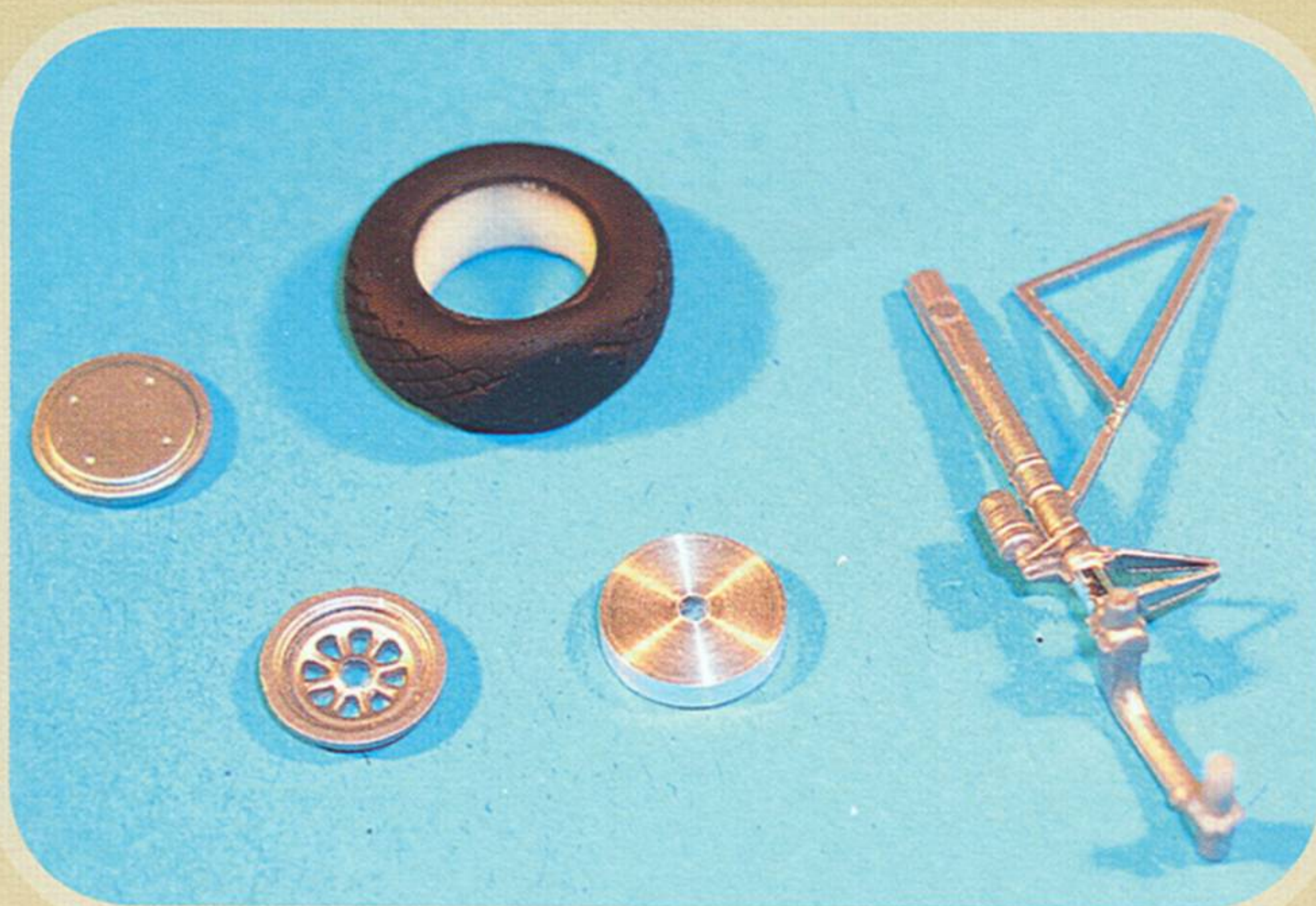
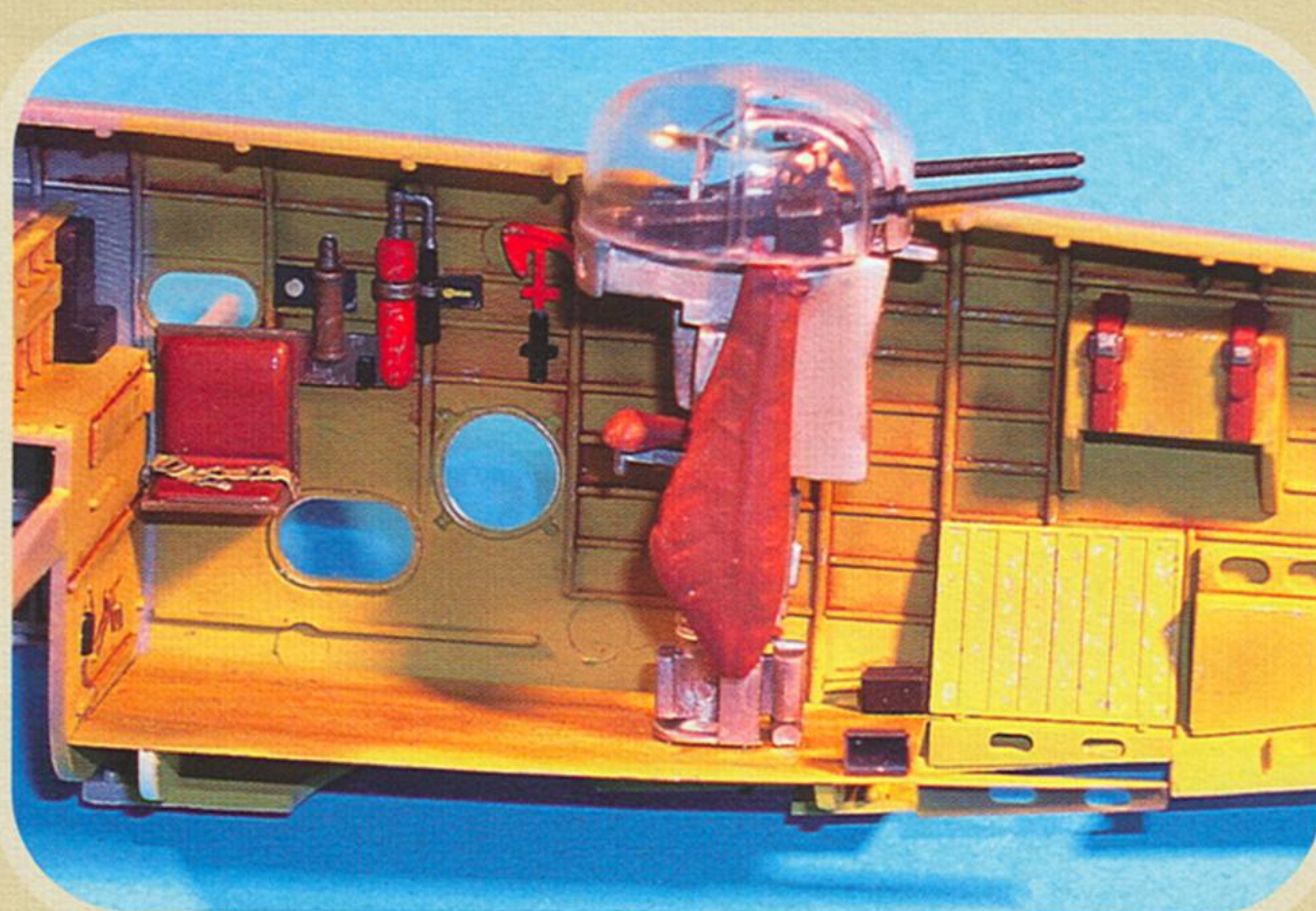
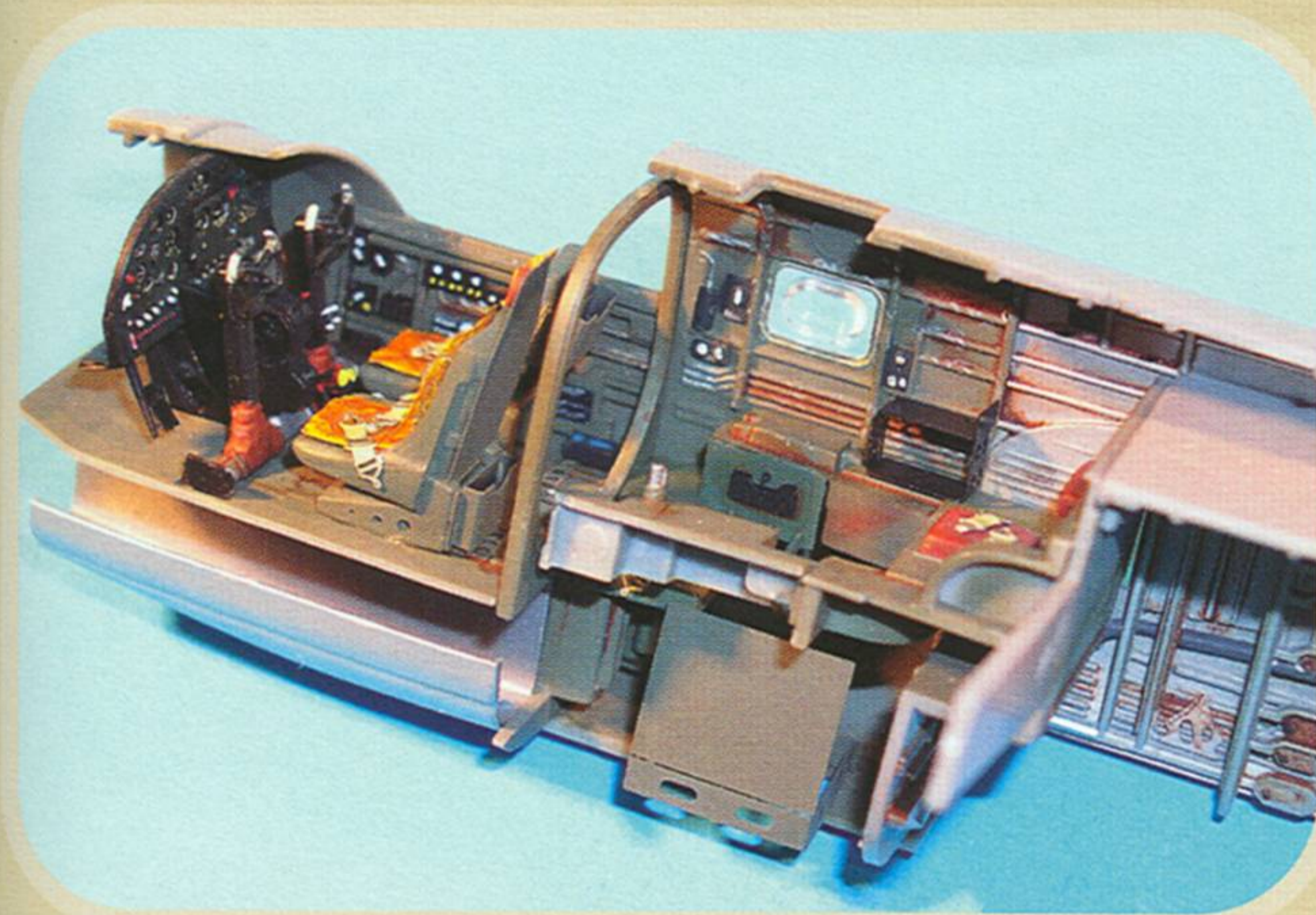
the engine nacelles, fixed in to place with epoxy glue. The engines were further detailed with some photo etched parts, and painted in aluminum with a Neutral Gray, (Gunze Sangyo H-53), gearbox. The spark plug leads were simulated with elastic wire.

The nacelles were fixed in to place and the small gap that appeared was covered with a thin strip of bare metal foil. All the cowling cooling flaps were replaced with individual plastic card flaps. The diameter of the cowlings is actually a little too

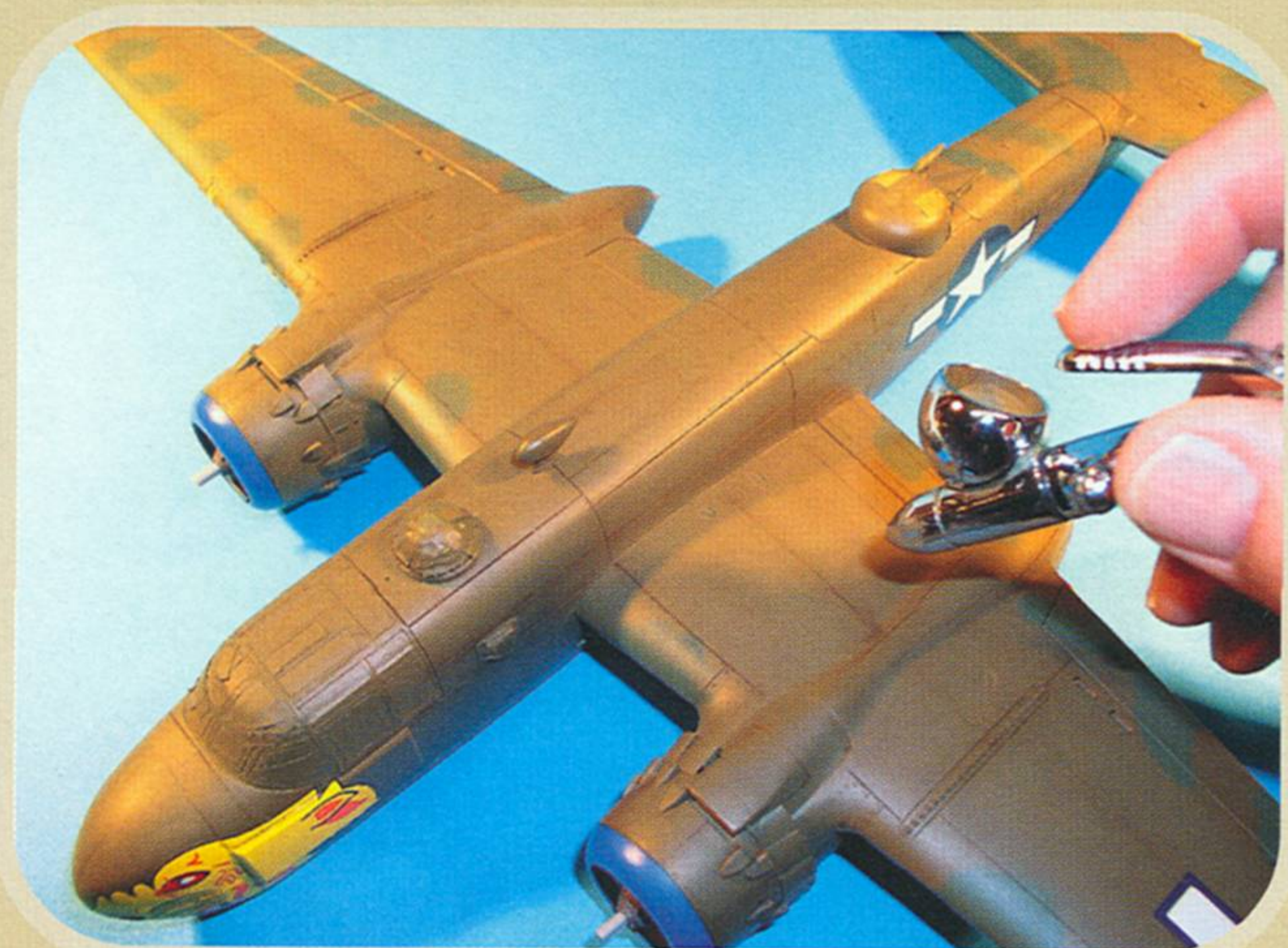
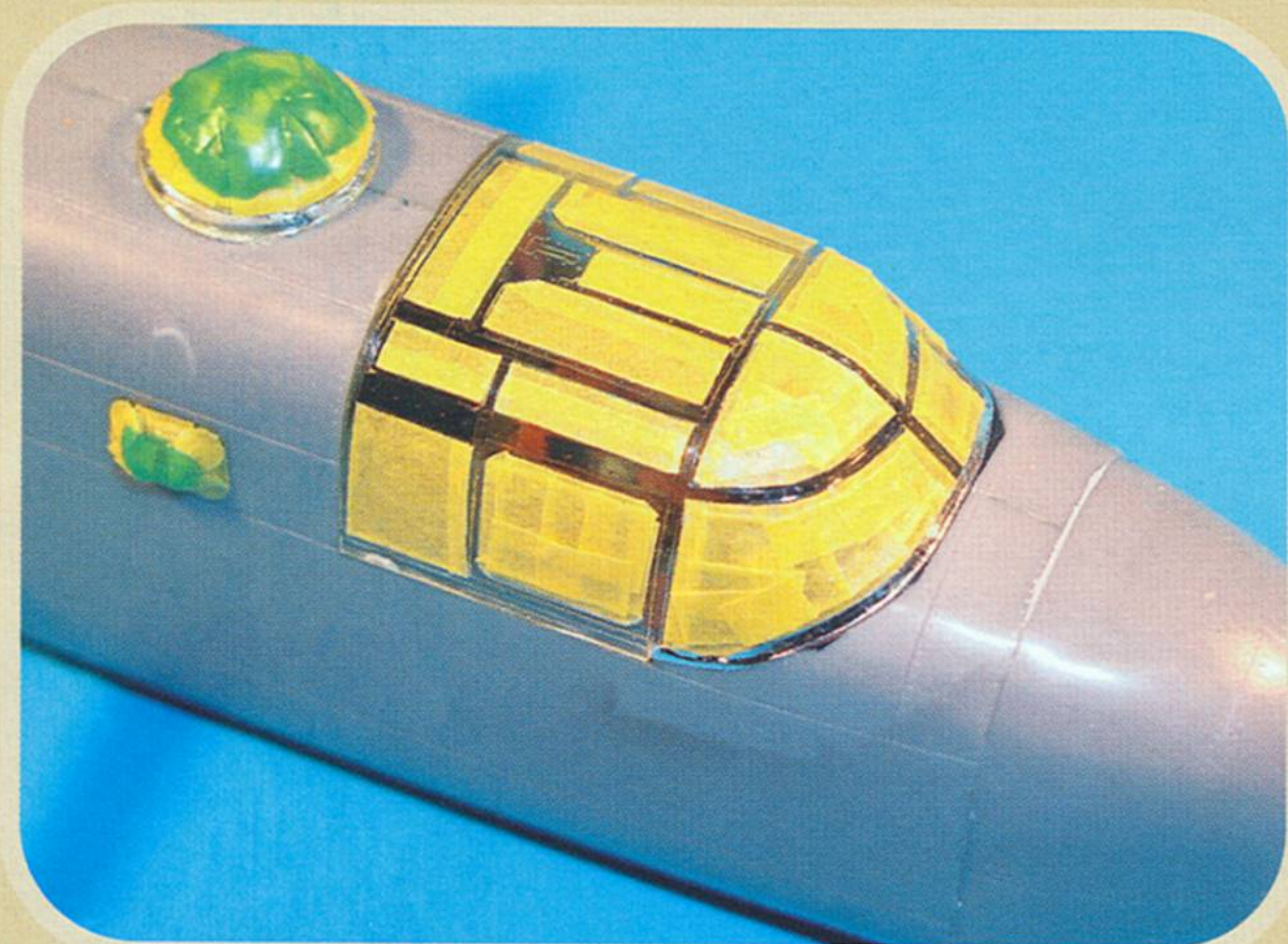
small, and I enlarged them from 18mm to 19mm diameter with a round file. This modification is really easy to do and gives a much better look to the model.

The landing gear

To add additional interest to the nose and main wheel landing gear, I added the brake lines down the main oleos and the shock absorbers were covered with bare metal foil. The kit's wheels were replaced with True Details wheels f48-019.



B25 G



Painting

Once assembled, the model was masked and polished with soft cloth, and it was now time for the painting to start. I chose a scheme for an aircraft called 'Tee-Kay' from the 823rd Bomb Squadron, 38th Bomb Group, 5th Air Force, based in New Guinea in the Pacific Theatre, in 1943.

I started off with painting the canopy frames in Medium Green Gunze Sangyo H-302, then applied the blue of the cowlings and the tail. The colour is a mix of Tamiya X-4 and white X-1 matched by eye. This mixed blue was now masked and the Neutral Gray 43, Gunze Sangyo H-53, was applied to the under surfaces. Then the Olive Drab 41, Gunze Sangyo H-52, was sprayed on the upper surfaces, followed by the Medium Green 42, Gunze H-302, 'blotching' on the leading and trailing edges of the flying surfaces, again sprayed freehand.

Before I sprayed on the gloss varnish prior to decalling, I again polished the model with a soft cloth and then applied the varnish. The decals came from an Albatross Modelwork sheet, which went on well with a little setting solution. The particular aircraft I chose to model, from the 823rd Bomb Squadron, nicknamed 'The Tigers', its not that easy, as it features a tiger's head on its nose which needs areas of paint adding to the decal to complete the design. Areas of the yellow colour have to be matched and the tiger's mouth is not quite the right shape, so I decide to hand paint it on instead. I cut the teeth out of the decal sheet, one by one, and placed them on my repainted tiger's head. For a decal sheet which cost as

much as this one, I really expected something better.

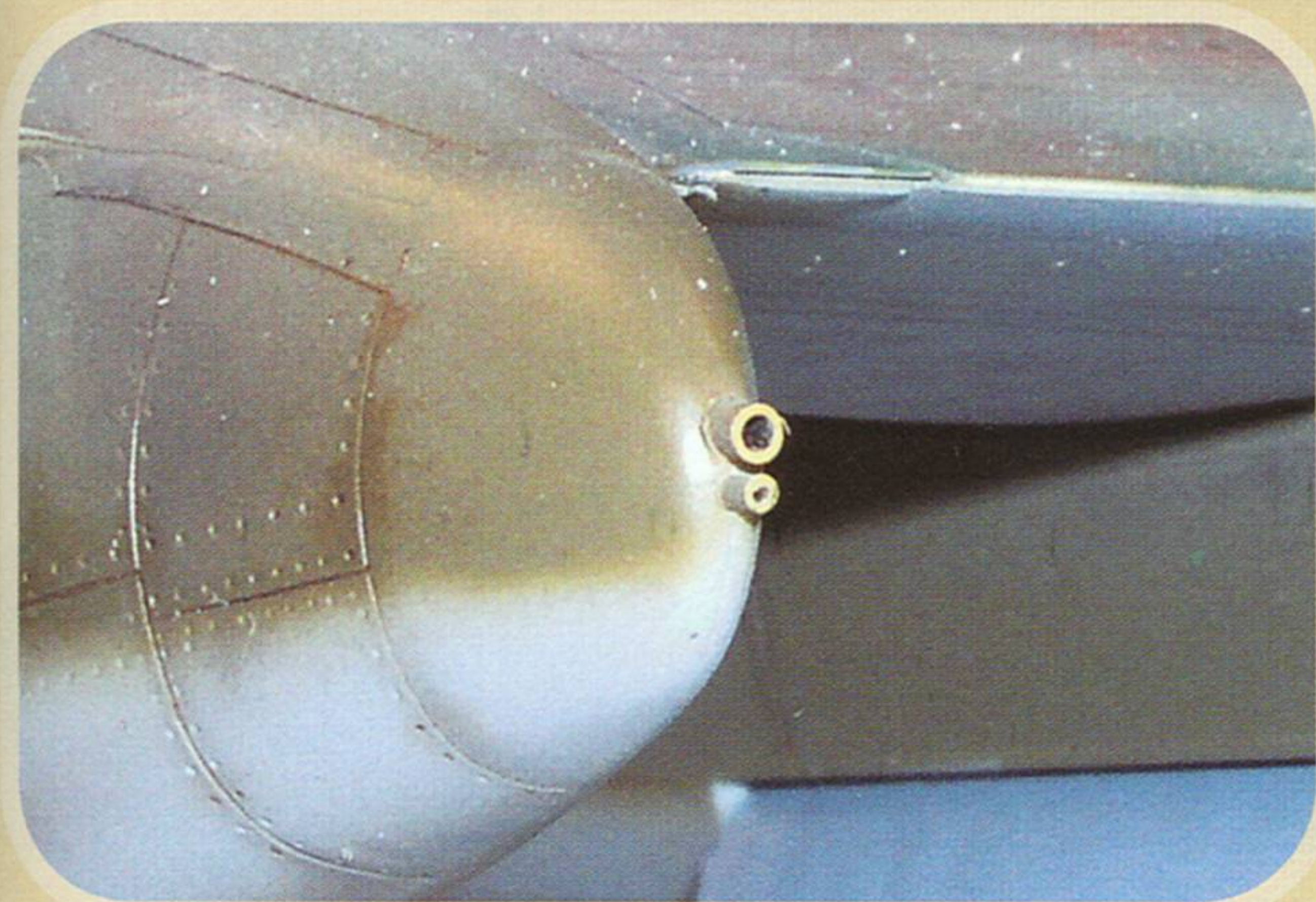
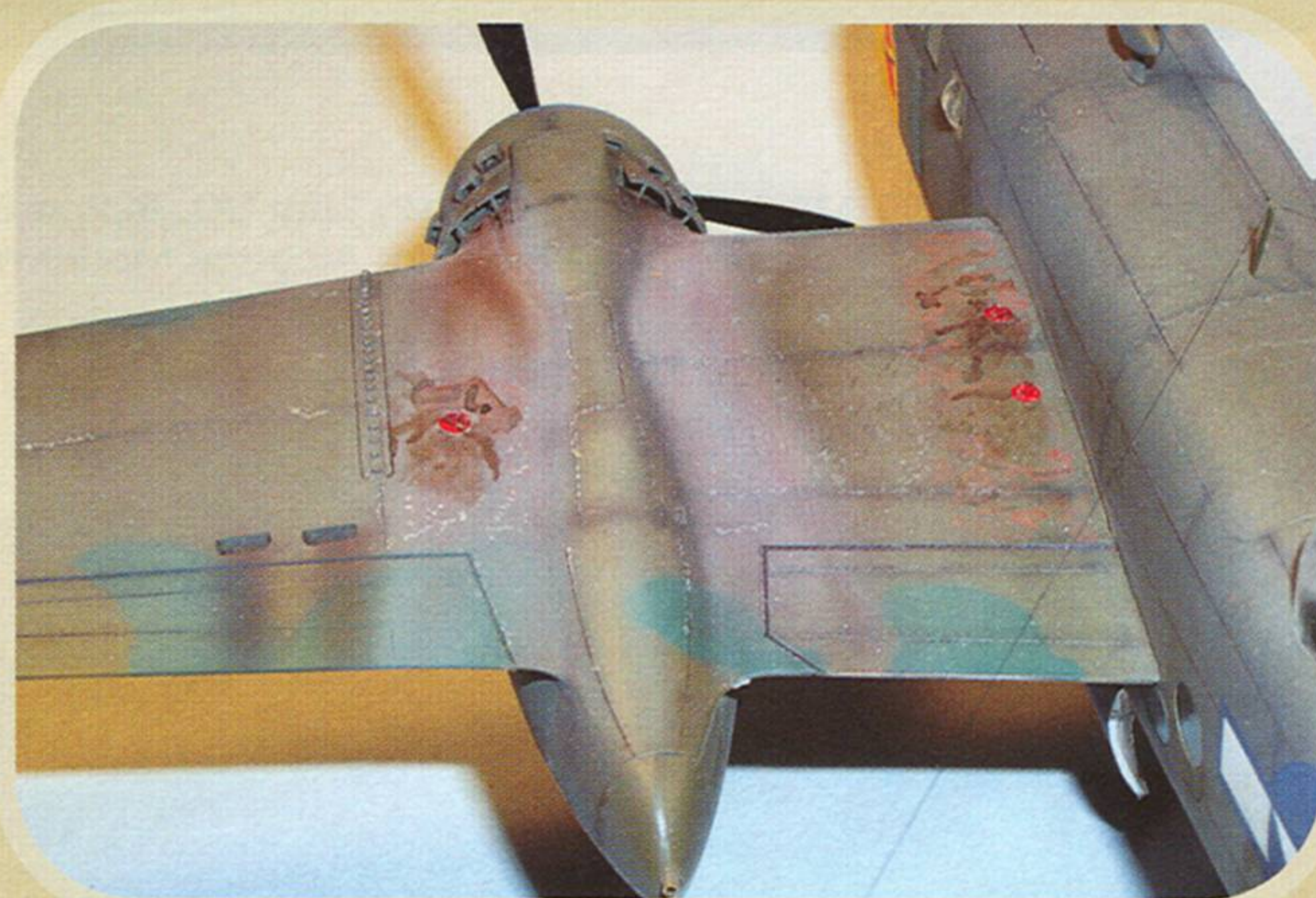
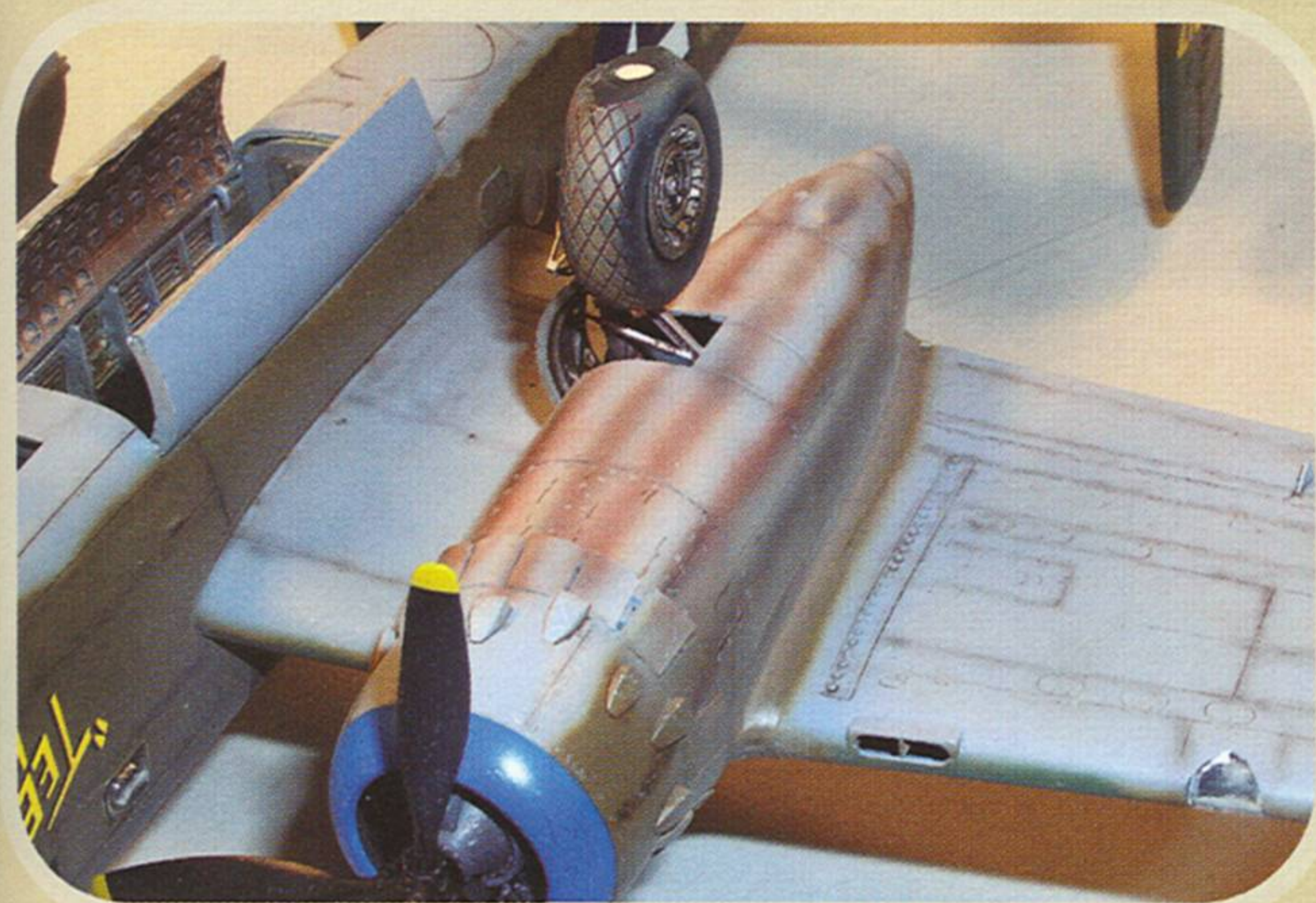
Once applied, all the decals were varnish again and the weathering process started. First a wash of Burnt Sienna and black oil paint was applied and then areas of Olive Drab, lightened with a drop of white and yellow, were sprayed on. Black ink diluted with water, was sprayed into all the panels lines, and then the exhausts stains were created with thinly applied layers of different shades of beige, brown and black.

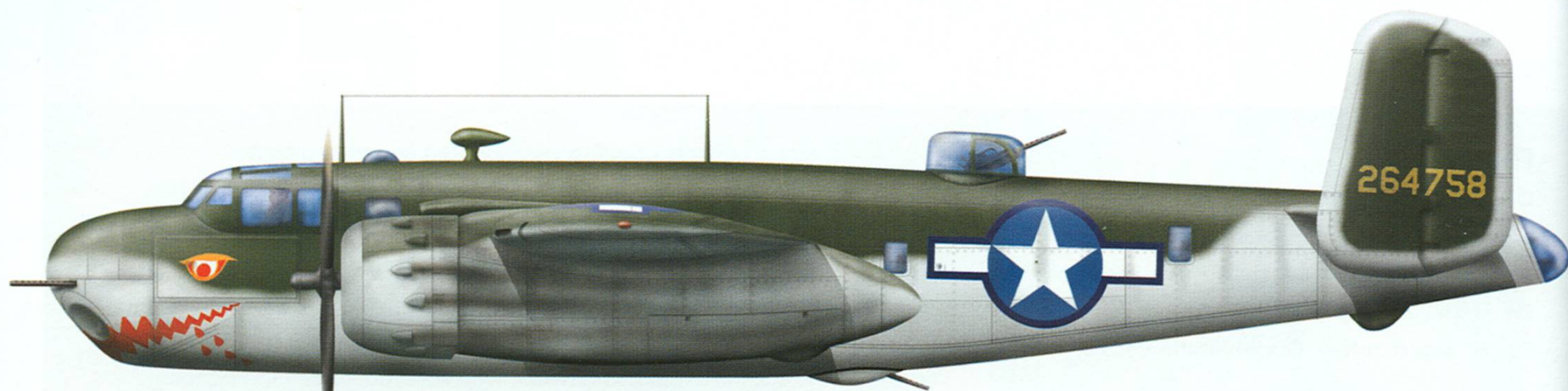
Mud and dust deposits were applied using Prince August acrylics diluted with water, and some oil stains were recreated using an oil wash. The chipped paint effect was made with a silver pencil. To seal everything in, a coat of Pebeo matt varnish was sprayed over the entire model. Finally, all the finer details were added including 0.05mm diameter antenna wire, which when fixed in place, was painted black.

Conclusion

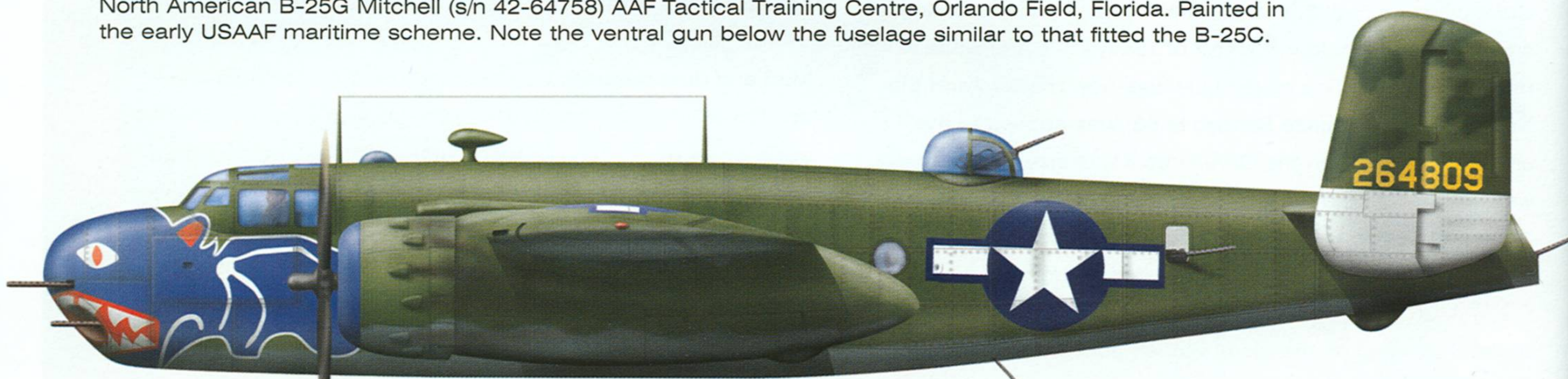
This is a good kit, probably the best B-25 on the market, but one which requires a fair amount of work to be spent on it to achieve an acceptable result. If you have never built a large twin engined aircraft before, it might be better to choose an easier model to start with!

I would like to thank Laurent Boulestin for his help with the internal colours and Georges Oliverau for his help with the cowling flap making techniques.

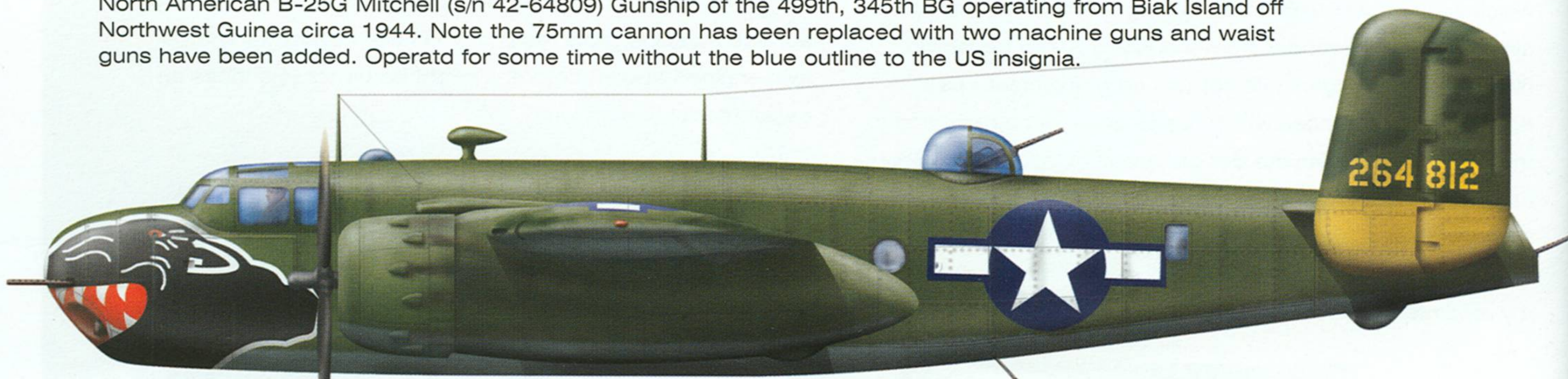




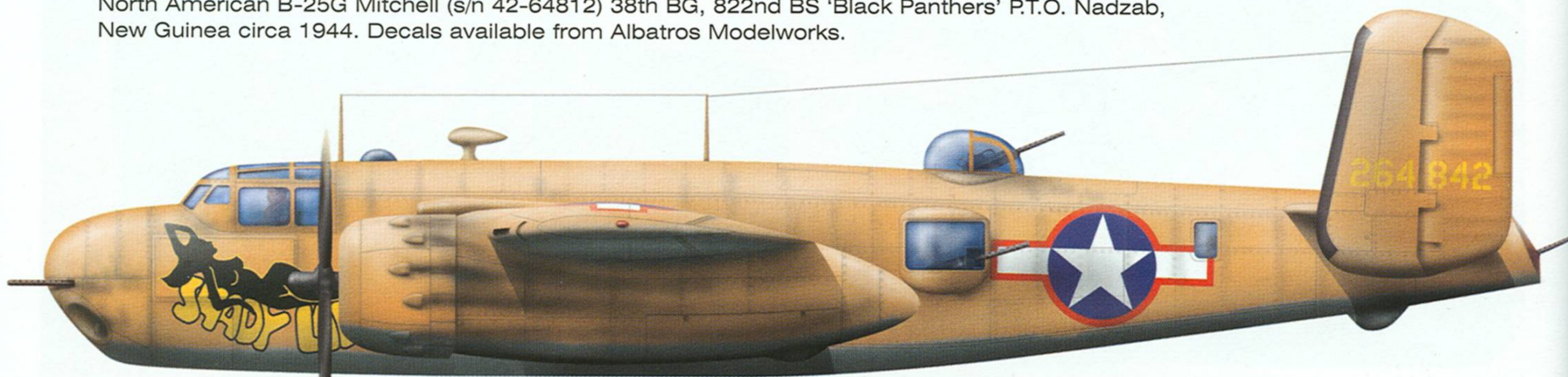
North American B-25G Mitchell (s/n 42-64758) AAF Tactical Training Centre, Orlando Field, Florida. Painted in the early USAAF maritime scheme. Note the ventral gun below the fuselage similar to that fitted the B-25C.



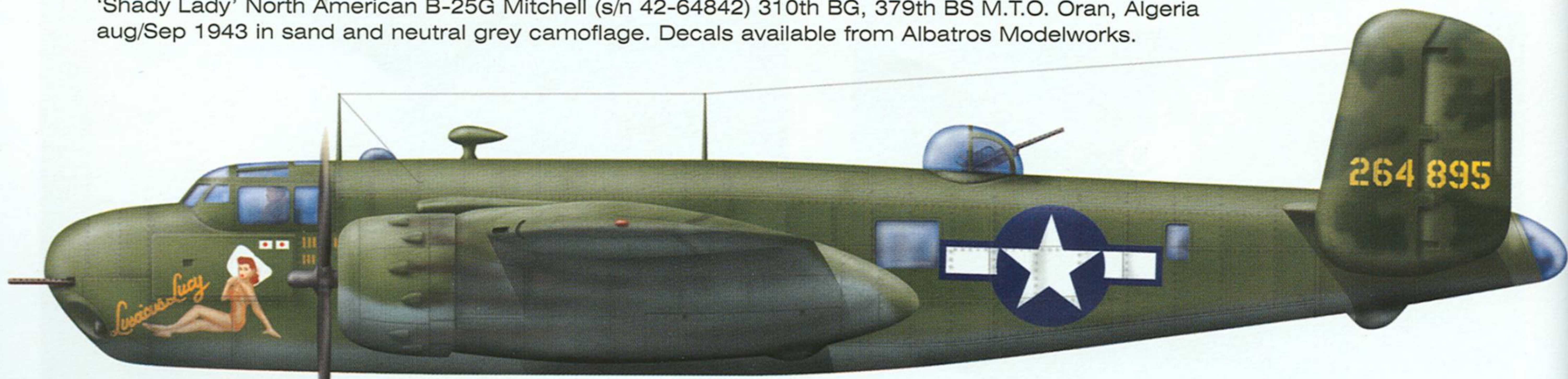
North American B-25G Mitchell (s/n 42-64809) Gunship of the 499th, 345th BG operating from Biak Island off Northwest Guinea circa 1944. Note the 75mm cannon has been replaced with two machine guns and waist guns have been added. Operatd for some time without the blue outline to the US insignia.



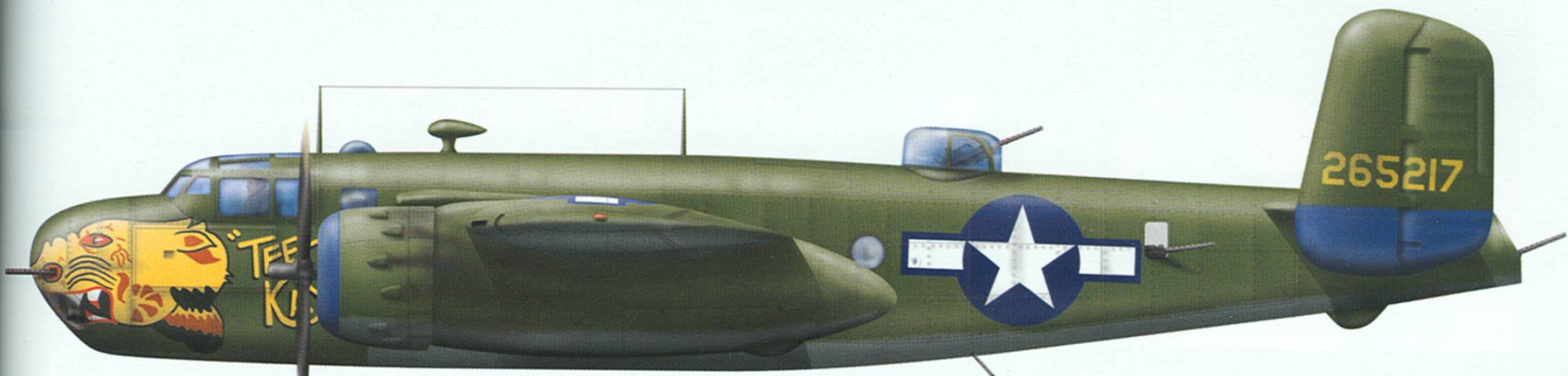
North American B-25G Mitchell (s/n 42-64812) 38th BG, 822nd BS 'Black Panthers' P.T.O. Nadzab, New Guinea circa 1944. Decals available from Albatros Modelworks.



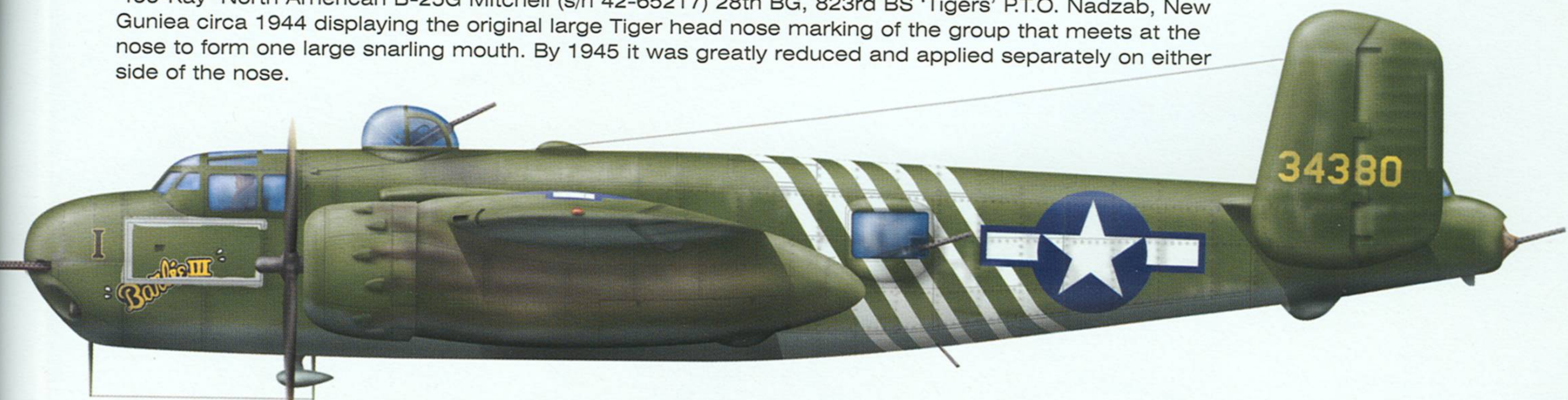
'Shady Lady' North American B-25G Mitchell (s/n 42-64842) 310th BG, 379th BS M.T.O. Oran, Algeria aug/Sep 1943 in sand and neutral grey camouflage. Decals available from Albatros Modelworks.



'Luscious Lucy' North American B-25G Mitchell (s/n 42-64895) 41st BG, 48th BS P.T.O. circa 1944. Decals available from Albatros Modelworks.



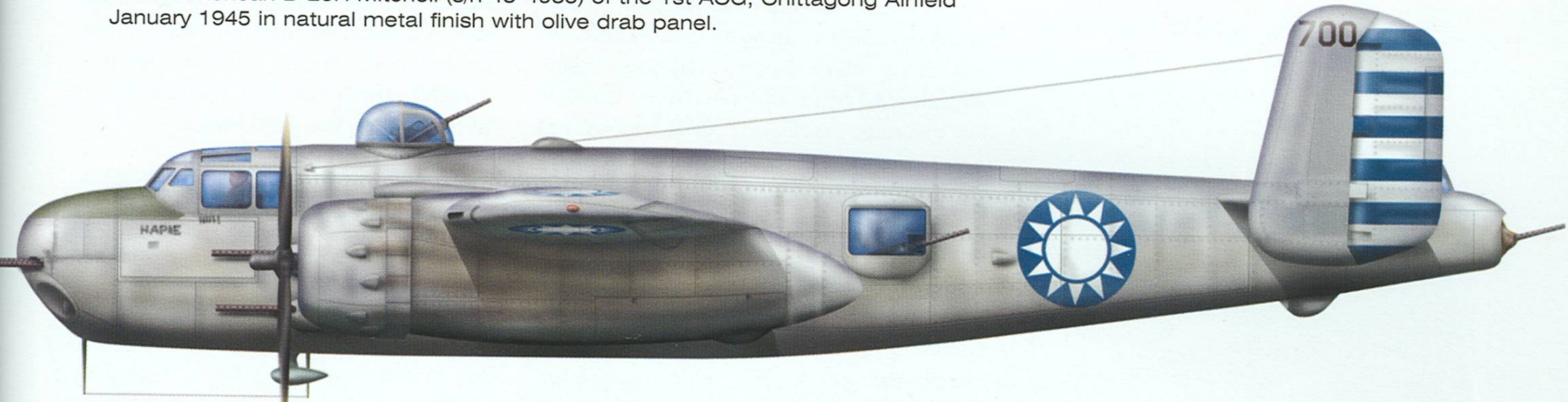
'Tee-Kay' North American B-25G Mitchell (s/n 42-65217) 28th BG, 823rd BS 'Tigers' P.T.O. Nadzab, New Guinea circa 1944 displaying the original large Tiger head nose marking of the group that meets at the nose to form one large snarling mouth. By 1945 it was greatly reduced and applied separately on either side of the nose.



'Barbie III' North American B-25H Mitchell (s/n 43-4380) painted with the five diagonal white stripes of the 1st Air Commando, Hailakandi, India circa 1944.



North American B-25H Mitchell (s/n 43-4935) of the 1st ACG, Chittagong Airfield January 1945 in natural metal finish with olive drab panel.



North American B-25H Mitchell '700' of the Chinese-American Group with the insignia of the Nationalist regime in natural metal finish.



North American PBJ-1H Mitchell of the U.S. Marines 614th Marine Bomber SQ. Code: White 99 Hawaii 1945.

B-25

Medium Bomber 'Heavy Hitter' By David Doyle



The twin-engine, twin tail design of the North American B-25 is recognized throughout the aviation world. Shown here in flight is a new B-25C, the first version to be truly mass-produced. Library of Congress photo.

A

America's most famed medium bomber of World War II was the B-25 Mitchell. Now small measure of its fame was a result of the daring attack on Japan by 16 of these aircraft lead by Lt. Colonel Jimmy Doolittle. For this raid, the aircraft carrier Hornet not only launched the raid on Tokyo, but also catapulted the B-25 to glory.

The B-25 was dubbed the Mitchell, honoring General Billy Mitchell, who is recognized as the father of strategic bombing. It was a fitting coincidence that the bomber bearing his name be used for the Tokyo raid, as not only was the attack valuable for U.S. moral, but also strategically, as it caused the diversion of Japanese war material for home island defense. However, as we shall see, the planes on this raid, model B-25B, were not the most potent of the Mitchells.

The lineage of the B-25 can be traced back to North American Aviation's model NA-40, itself being an outgrowth of the earlier NA-21 and NA-39. The NA-40 was built privately by North American to be a

contender in the Army Air Corps light attack bomber bidding. The NA-40 was lost in a crash on April 11, 1939, during testing, and Douglas was awarded the attack bomber contract, the resultant aircraft being the A-20 Havoc.

B-25

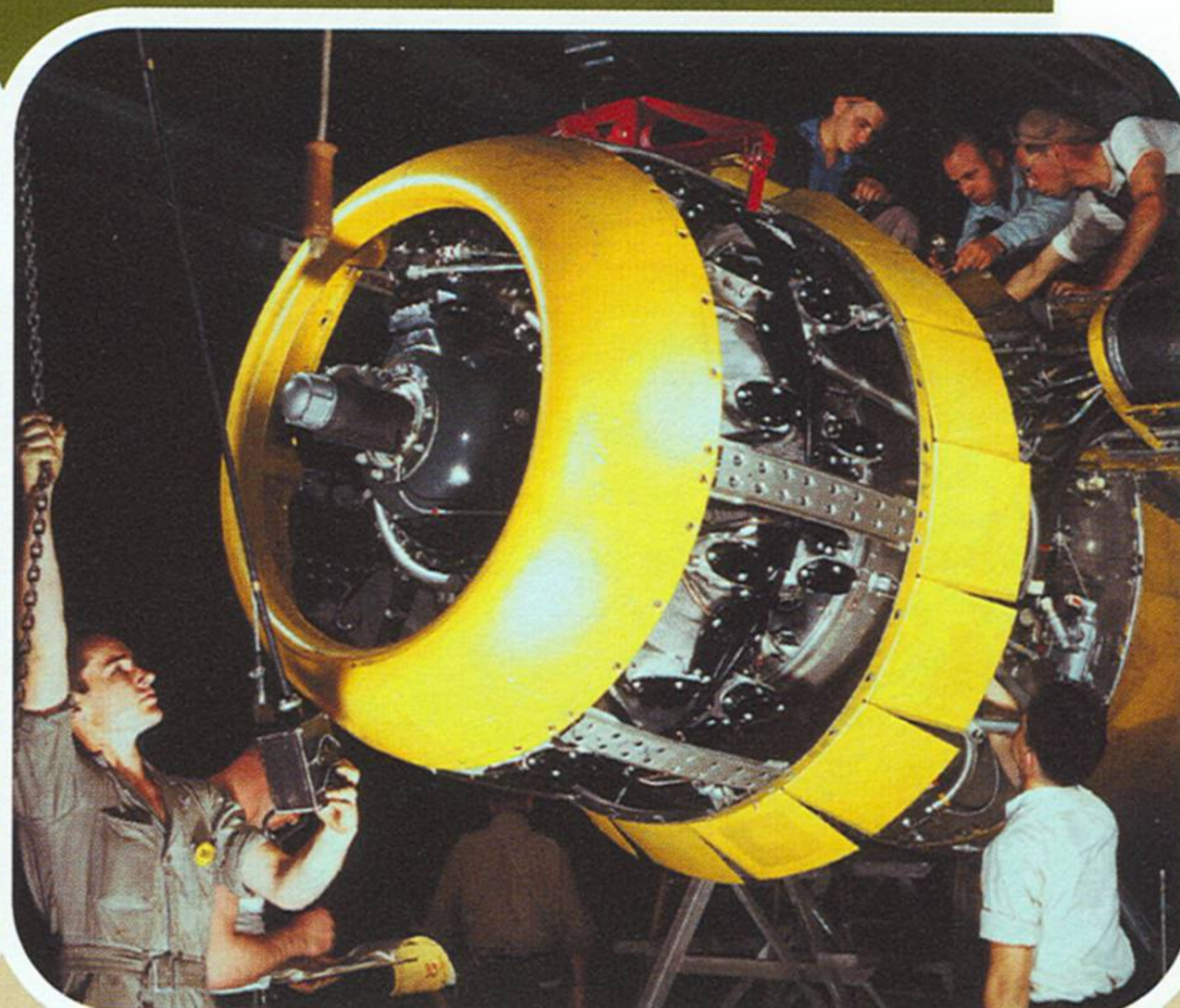
Almost concurrent with the crash of the NA-40, the army requested proposals for a medium bomber. North American's engineers revamped the design, giving it the model number NA-62. On August 10, 1939 the Army ordered 184 of the model NA-62, even before the first one had flown. North American's NA-62 was designated the B-25.

The winds of war in Europe brought about expedited procurement of the new aircraft, and the usual experimental X-aircraft and service test Y-aircraft were dispensed with, the bomber instead going into full-scale production. Because of this accelerated program, several running changes were made, the most notable being a change in



The B-25D was essentially a B-25C manufactured at the Kansas City plant. Most changes made during the course of production were made by both plants, but not always simultaneously. This view of the assembly line shows the OD-finished control surfaces contrasting with the chromate-primed airframe.

Library of Congress photo.



Here workmen are connecting the myriad of electrical, fuel, and oil lines that join the engine to the airframe on a B-25C.

Library of Congress photo.

the wing geometry after nine aircraft had been completed. Initially the wing of the B-25 had a constant dihedral of slightly more than four degrees. Beginning with the tenth B-25, the dihedral outboard of the engines was reduced to zero degrees, 21 minutes 39 seconds, giving the bomber a slight gull-wing appearance.

B-25A Fit to fight

Starting with the 25th B-25, self-sealing fuel tanks were installed in the medium bomber. Concurrently, rudimentary armor began to be provided for the pilot, copilot and bombardier. These improvements resulted in the assigning of a new North American model number, NA-62A, and a new military designation as well, B-25A. These were the first of the Mitchells to be considered combat worthy, but like their predecessors they had a minimum of defensive armament. In the nose was a single .30 caliber flexible machine gun,

which the bombardier was expected to move between three sockets as conditions warranted. The radio operator was provided with three .30 caliber Brownings, one on each side in waist positions, and one mounted overhead in a manner similar to that used for B-17 radio operators' weapons. The heaviest defensive armament was a single flexible .50 caliber machine gun mounted in the tail. The tail gunner could fire this from the kneeling, sitting or prone position. A bomb load of 3000 lbs could be carried internally. Forty B-25A aircraft were completed.

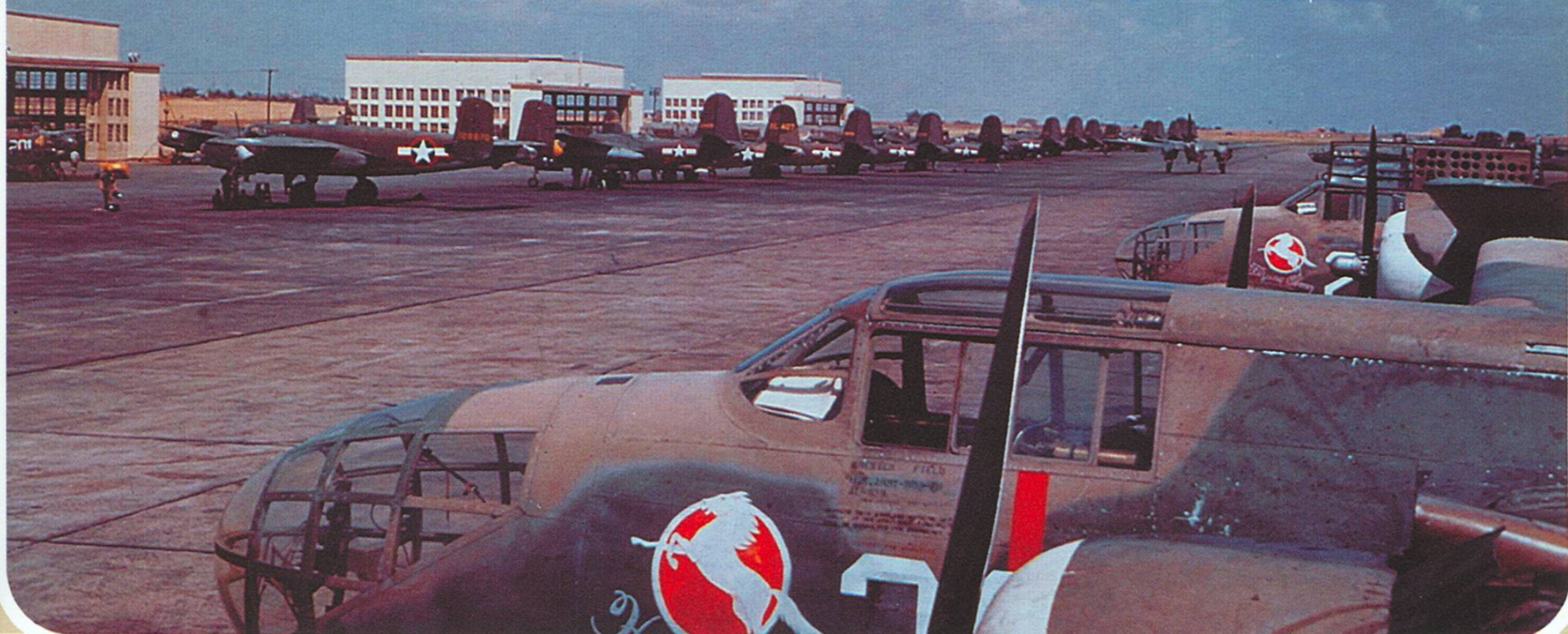
B-25B Increased firepower

Aerial warfare over Europe was being keenly observed by the Army Air Corps, and soon it was felt that the Mitchell was ill-equipped to defend itself against enemy interceptors. Thus, it was decided the protection of the remaining 120 bombers on order would be increased.

North American's engineers created their NA-62B, the B-25B, by adding Bendix power operated turrets. The engineers felt that the addition of an upper and lower turret, each armed with twin .50 caliber machine guns, gave the bomber adequate firepower, so the rear gun position, as well as the radio-operator's upper and waist guns, were deleted. The model A4 upper turret, with its Plexiglas enclosure for weapons and operator, occupied the location of the previously installed upper window and machine gun mount. The Bendix model A5 lower turret was retractable, and was operated from inside the aircraft by a gunner using a periscope. This method was eventually determined to be ineffective, but not until production of the B-25G model was underway.

One other distinguishing characteristic of the B-25B was the exhaust stack of the right engine being substantially shorter than that of the left. It was modified B-

A lone B-25D, its upper and lower turrets removed, shares the ramp with several Douglas A-20 Havoc attack bombers. The similar size of the aircraft is not surprising, as the A-20 was built to fulfill the contract that North American was seeking when they designed the NA-40, the B-25's immediate predecessor. National Archives and Records Administration photo.





Production of the B-25C began in earnest in December 1941, with deliveries starting the following month. North American's Inglewood plant lacked adequate floor space to meet the demand, but the sunny California weather permitted much of the final assembly to be completed outdoors, as shown here. Library of Congress photo.



This B-26G-5-NA, serial 42-64968, known as "Blondie's Revenge", had waist and tail gun positions added by an air depot modification center. Unlike similar later factory installations for the H and J, this aircraft has only a single tail gun, and the waist positions lack enclosures. Photo courtesy of the Veteran's Museum, Halls, Tn.



As production capacity at Inglewood was pushed to the limit, the finish painting began to be outdoors as well. Here workers mask off the Plexiglas of the cockpit and bombardier's position in preparation of the OD and gray coating. Note the lower front window and the radio antenna. Library of Congress photo.

25Bs that flew from the deck of the Hornet into history on April 18, 1942. Doolittle's aircraft were modified with greatly increased fuel capacity, which forced the removal of the lower gun turret. Lacking rear armament, wooden dowels were installed to simulate the appearance of a rear gun position. Of the 120 B-25B bombers built, the fifteenth crashed prior to delivery. Twenty-three were delivered to the Royal Air Force, who designated it the Mitchell I, and two to Russia (presumably joined by a third, when one of the Doolittle raider's aircraft was interned there).

B-25C and B-25D Kansas City, here we come.

The first B-25C lifted into the air from North America's Inglewood, California facility on November 9, 1941. Deliveries to the Army began just after the first of the new year. During the interim, the Japanese attack on Pearl Harbor had brought the United States into the war, and orders for arms, including the Mitchell, increased dramatically. In fact, North America's Inglewood facility was inadequate to meet the demand for the Mitchell and its stablemate, the P-51 Mustang. Two solutions to this problem were employed, first, final assembly work was moved to an out-of-doors production line. Secondly, an additional

manufacturing center was established in Kansas City. Deliveries of the initial Kansas City-built bomber, the B-25D, which was virtually identical to the California-built B-25C, began in February 1942. The coastal facility had turned out 1625 of this model by May 1943, while the mid-America plant produced 2290 B-25D models by March 1944, at which time production shifted to newer versions.

Regardless of where built, the powerplant was the R-2600-13 Wright Cyclone. Armament, bomb racks, and exhaust stacks were improved during the production of the aircraft, essentially necessitating specific photographic reference to create an accurate representation.

Some of the more apparent changes are as follows.

Beginning with 41-12817 astrodomes began to be installed in lieu of the flat window on top of the navigator's compartment.

External bomb racks were added starting with 41-13039. This included under-wing bomb racks as well as an under-fuselage rack. The later could accommodate a 2,000-pound torpedo.

The nose-mounted .30 caliber flexible machine gun was replaced with a more potent .50 caliber flexible gun at 42-53332, which required strengthening the nose. A

fixed, pilot controlled .50 caliber gun was also added inside the nose, on the right side of the aircraft.

At 42-32233 the navigator's flat side windows were changed to blisters, and at 42-32383 individual flame-dampening stacks on each cylinder replaced the previously used single collector for each engine.

Improved Bendix A-9 upper and A-10 lower turrets were installed starting with 42-64502.

Improved pilot vision was the result of redesigned windshield framework introduced with 42-64702.

Similar changes were made to Kansas City production, however it should be noted that almost 300 of the B-25D models were built without the lower gun turret.

In addition to the United States Army, the U.S. Navy, Great Britain, Australia, Russia, China, as well as free forces of the Dutch and French operated the B-25C.

Many of the B-25C and B-25D had their armament modified, both in the field and at special modification centers. Lower turrets were removed, tail and waist gun positions added and a myriad of other changes made, resulting in an almost infinite variety of aircraft existing.

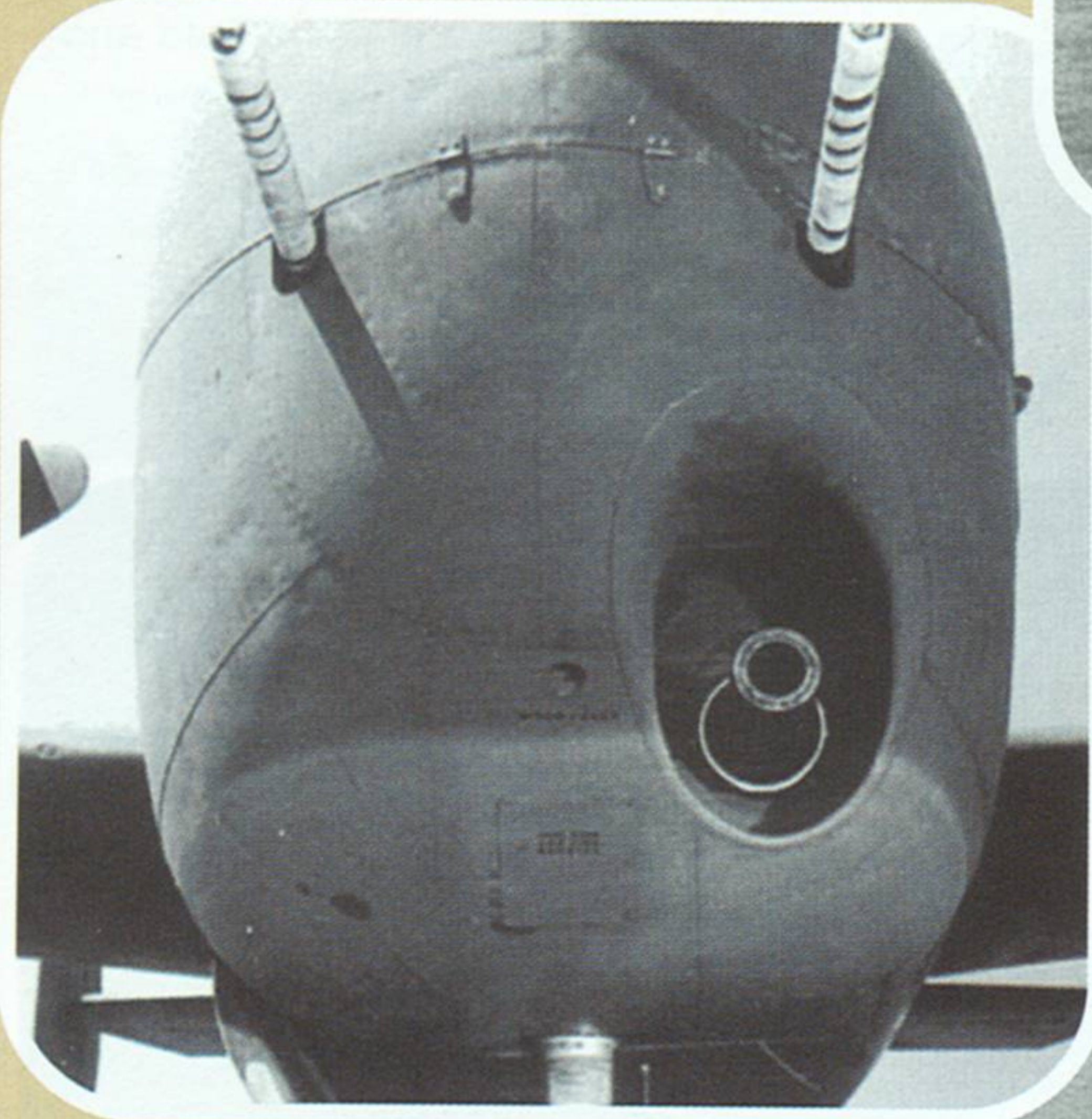
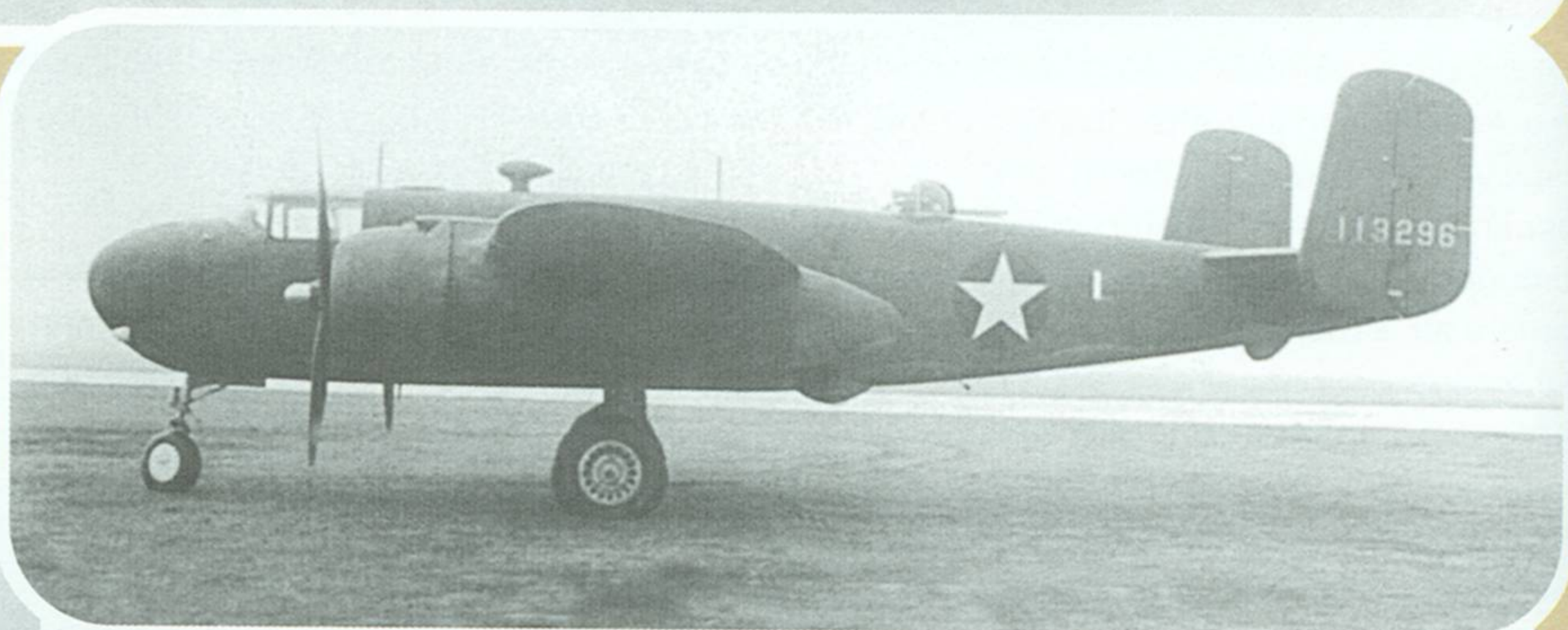


Black rubber deicing boots were installed on the leading edges of the wings, but these were often removed in the field. The size of the airplane is apparent when compared to the workman standing beside it. Library of Congress photo.

This B-25G, 42-64758, is unusual for a couple of reasons. First, it is painted in the olive drab over white "Sea Search" scheme. Secondly, it is one of 63 production B-25Gs that were built fresh, but rather were converted from brand new B-25C models. National Archives and Records Administration photo.

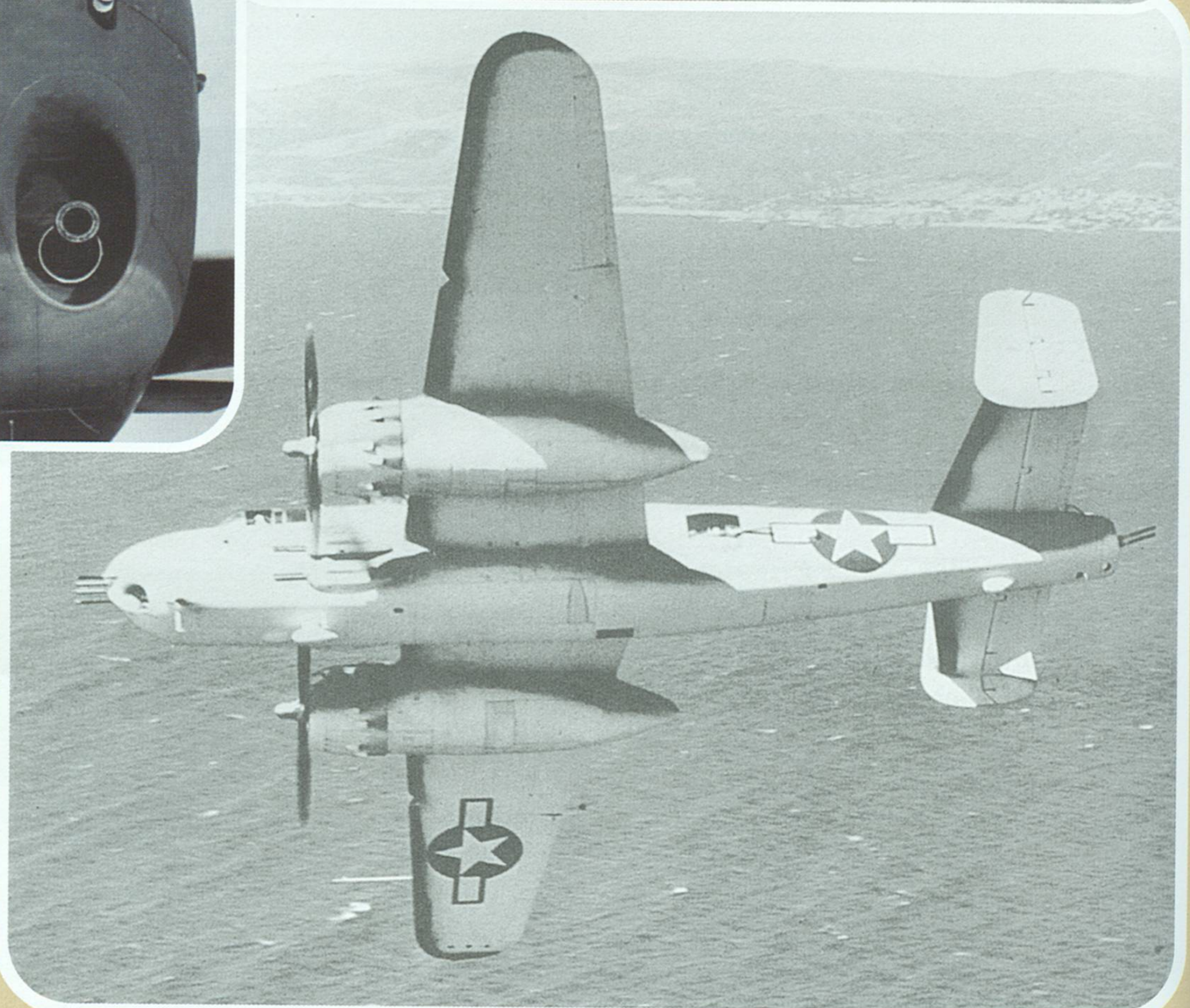


A 75mm cannon was installed in a converted B-25C, creating the XB-25G shown here. This trial aircraft had only the cannon installed in its solid nose, and extending back into the former bombardier's crawlspace. The navigator acted as loader, while the pilot fired the cannon. Photo courtesy of the Veteran's Museum, Halls, Tn.



Subsequent trial aircraft, as well as production models, added a pair of fifty-caliber machine guns to the nose armament. These not only served to help the pilot aim the aircraft, but also added considerable suppressive firepower. Photo courtesy of the Veteran's Museum, Halls, Tn.

The B-25H was also furnished to the Navy, who classified it as the PBJ-1H. One of these was even successfully landed on the aircraft carrier USS Shangri-La. Photo courtesy of the Veteran's Museum, Halls, Tn.



XB-25E & XB-25F ñ one-off warriors. One each experimental XB-25E and XB-25F were converted from production B-25C aircraft in order to test various methods of wing deicing.

B-25G Airborne artillery

A third B-25C, 41-13296, was also modified to X-plane status, becoming the XB-25G. The 'greenhouse'-type nose was replaced with a shorter, metal nose. Housed inside this near the vertical centerline of the fuselage were two fifty caliber machine guns mounted abreast. Beneath them, extending back into the area formerly used as the bombardier's crawlway was the B-25G's Sunday punch, a 75mm cannon.

The M-4, and later M-6, 75mm cannon was essentially a tank gun firing a twenty-pound round. Fired by the pilot, the gun was hand-loaded by the navigator. Twenty-one rounds was the normal ammo load for the big gun, while the twin nose-mounted fifty-calibers each had their own 400-round magazine. While devastating in their own right, the firing of the machine guns also served as an aiming aid for the cannon. First flown in October 1942, the XB-25G mwas extensively tested. In January 1943, five more B-25C aircraft, 42-32384 through 42-32388, were converted to G status for additional service testing.

North American's contract for B-25C aircraft was modified, specifying that 400 of the bombers were to be completed in B-25G configuration, which was accomplished from May to August 1943. A further 63 previously built B-25C were converted to B-25G standards. A little more than half of newly-built B-25G models (42-64802 42-65201) were equipped with the ventral power turret, as beginning with 42-

65102 it was eliminated. As a result of the elimination of this turret, many of the B-25G had tail positions with single fifty caliber machine guns added at modification centers. Waist gun positions were sometimes added as well.

One of the distinguishing characteristics of this aircraft is the sheet metal shield obscuring the lower left side of the windscreen. This was intended to prevent the muzzle flash from the cannon from blinding or distracting the pilot. The U.S. Navy received one of these aircraft, which it designated PBJ-1G, and Australia took delivery of a few examples, but the bulk were operated by the U.S. Army Air Force.

B-25H - Increased firepower

The B-25G delivered what the strategists wanted; a heavy-hitting aircraft capable of shipping interdiction or attack on ground targets. However, its self-defense capabilities were somewhat limited. Accordingly, B-25C 42-32372 was selected as a test bed for further improvements. The result of these experiments, the B-25H not only rectified the defensive problem, but increased the assault firepower as well.

Moving the dorsal turret forward into the navigator's compartment freed space in the aft fuselage for installation of staggered waist gun positions, each armed with a fifty caliber machine gun. The tail, which had been without a factory-installed gun position since the B-25A, was deepened and a Bell-designed M7 electro-hydraulic twin fifty caliber tail gun installation fitted. The gunner sat beneath a greenhouse type canopy at the rear of the bomber, which was slightly wider than on previous models. On the flight deck a notable change was made; the copilot, his

position and controls, were eliminated. The instrument panel was redesigned to better accommodate a single pilot, and sights were added for both bombardment and cannon fire. Armor plate was installed outside the cockpit for additional protection.

An improved, lighter, T13E1 cannon was installed, once again being manually loaded by the navigator. In the solid nose, the two machine guns of the B-25G were doubled, with four of the heavy weapons being mounted abreast. Occasional shortages of the T13E1 weapon sometimes forced the installation of the older M-4, which in turn required the elimination of the two outer nose machine guns.

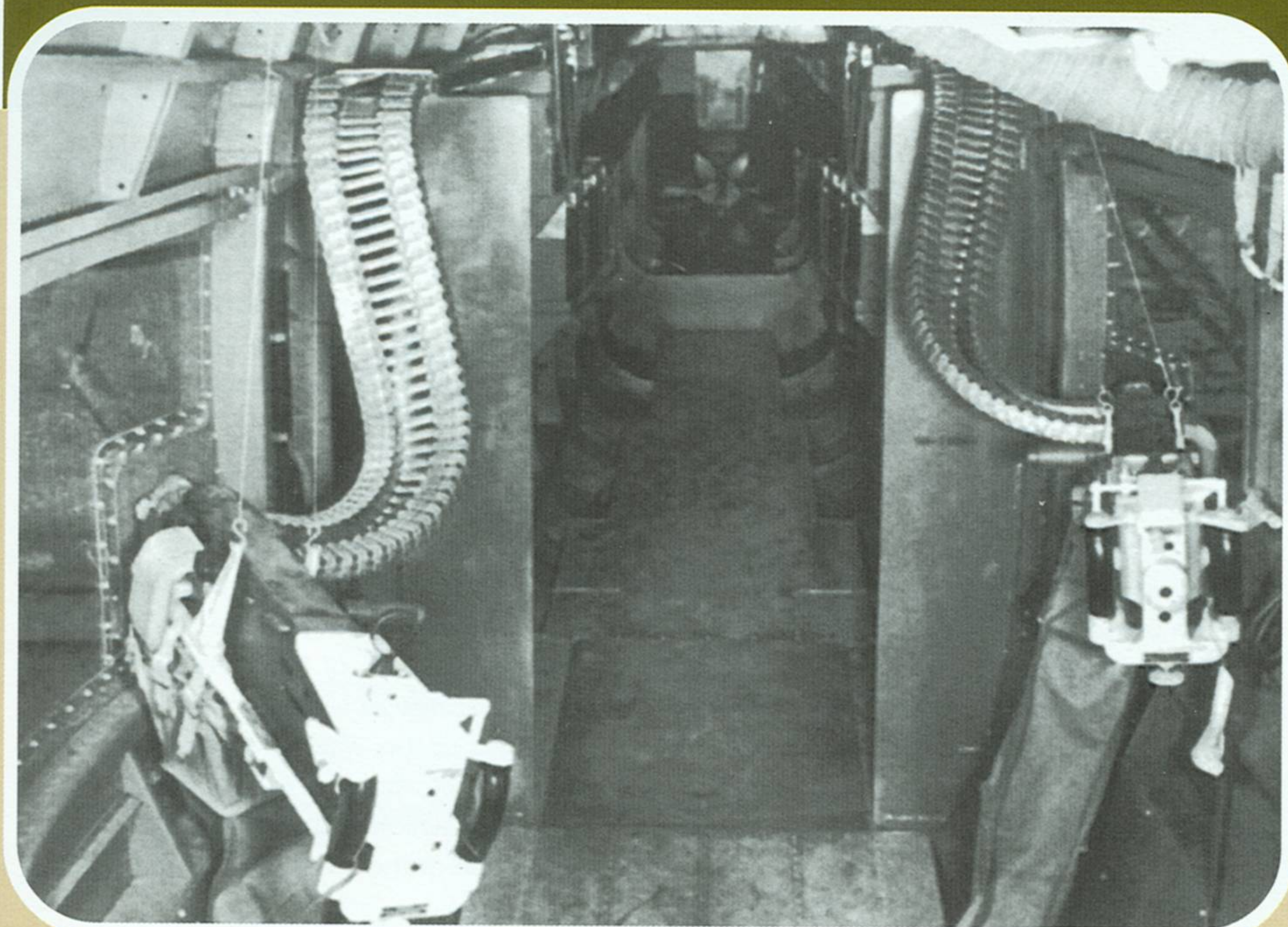
Even more strafing power was added, first from the addition of two individually mounted fifty-caliber gun packs on the right side of the fuselage beneath the cockpit. After 300 aircraft were produced in this configuration, two gun packs began to be installed on the left side as well, and this was the case for the remaining 700 B-25H models built. Production spanned from August 1943 into July 1944. The final B-25H, named 'Old Bones', was also the last Mitchell built in California.

The pilot's flash shield was carried over from the B-25G. A circular escape hatch was added to the right rear side of the fuselage, and the carburetor air intakes at the top of the nacelles were enlarged. After 43-4535, the B-25H was no longer able to carry a 2000-pound bomb.

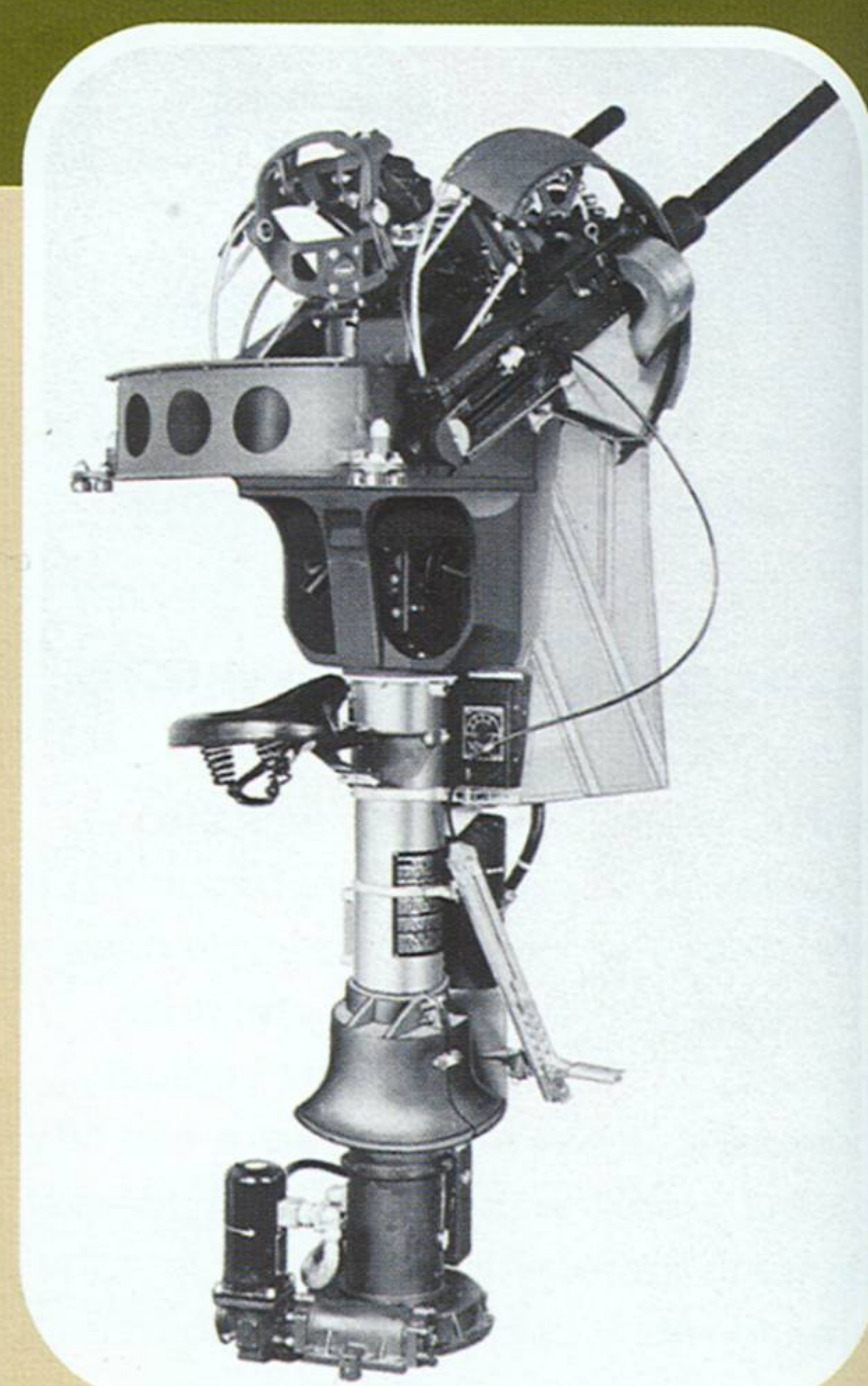
Used by Marines, 236 of the B-25Hs were acquired by the Navy, who designated them PBJ-1H.



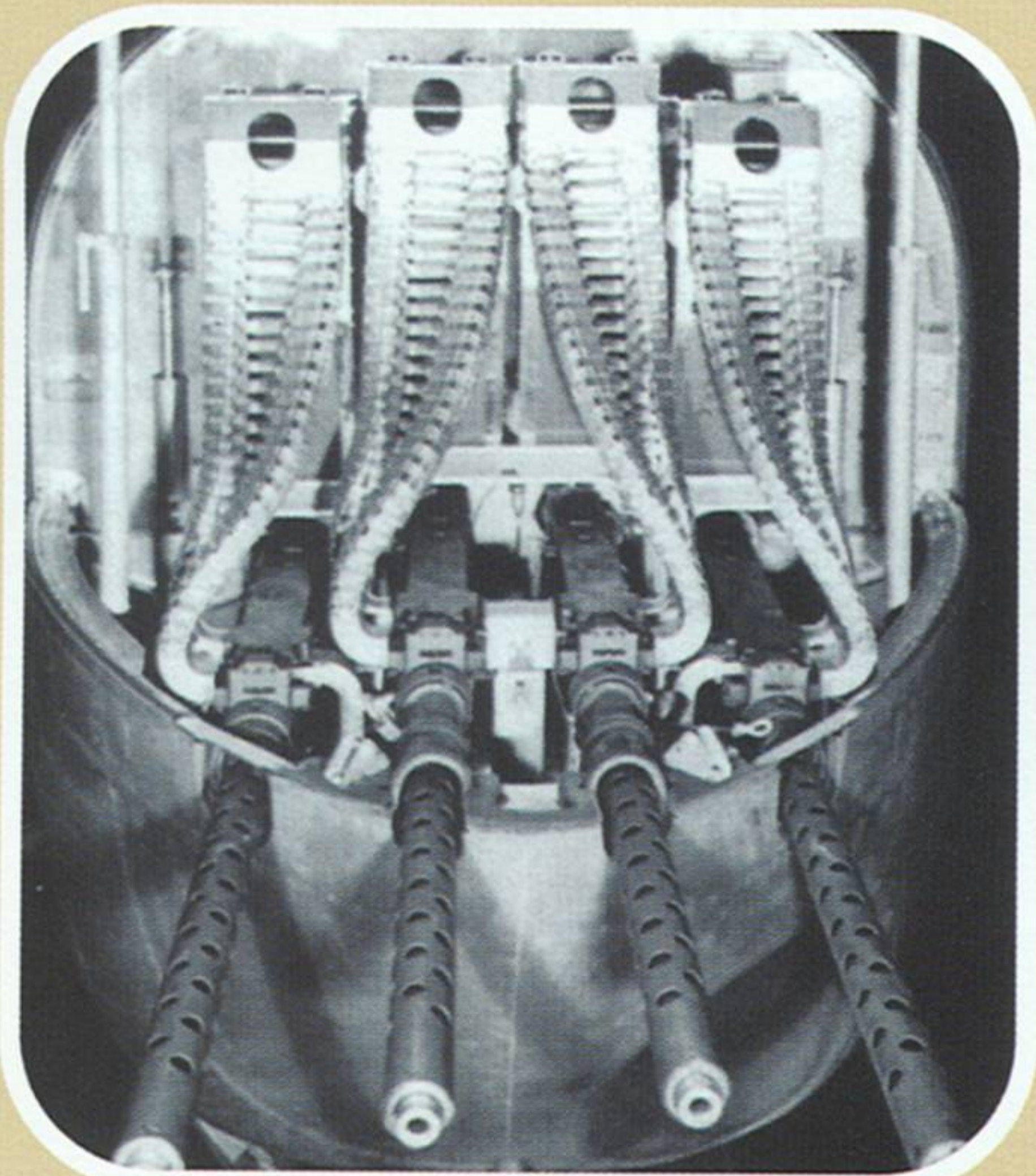
"Sweet Sue", a B-25H of the First Air Commandos, was photographed at Hailakandi, India. The B-25H entered service with the Army Air Force in 1944. National Archives and Records Administration photo.



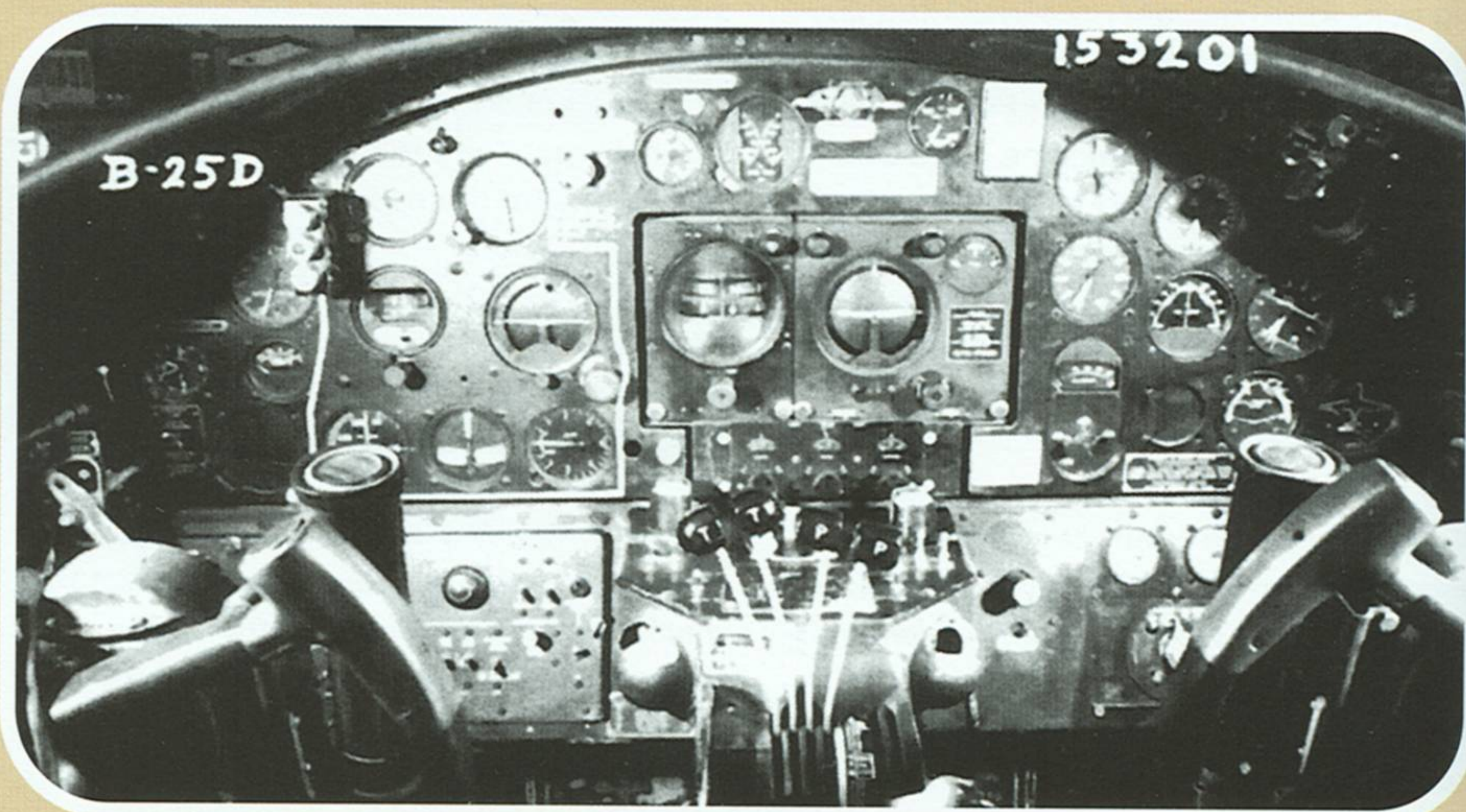
Moving the upper turret forward and deleting the ventral turret permitted the installation of large, staggered and effective waist gun positions. Typically one gunner manned both fifty-caliber machine guns, utilizing the appropriate gun for the circumstance. This installation was found in the B-25H and J. National Archives and Records Administration photo.



The turret used in the B-25H and J was the Bendix A-9. Gun charging was accomplished through the foot rests, while the hand grips controlled turret traverse, gun elevation and firing. The gray box opposite the gunner's bicycle seat held four hundred rounds of ammunition for each gun. Photo courtesy the Bendix Corporation.



The clamshell-type gun bay door opened to allow the machine guns to be serviced. The bulk of the cannon was housed in the space formerly used as a crawlway from the flight deck to the nose compartment. Photo courtesy of the Veteran's Museum, Halls, Tn.



The instrument panel of the B-25D, shown here, was not greatly different from that of its predecessors. Both pilot and copilot had a full set of controls, and critical instruments were visible to both. Photo courtesy of United States Air Force Museum.

B-25J - the ultimate Mitchell

Beginning in December 1943, North American built 4390 B-25J Mitchells. When production ceased in August 1945, 4318 of these had been delivered. For the bulk of the production, the glass nose of the early Mitchells returned, as did the dual-control pilot-copilot cockpit configuration. Strangely, though none of the J models were cannon-armed, the flash shield remained on the pilot's windshield.

Initially, the waist, tail and upper turret mountings were the same as those found on late model Hs. However, beginning with 44-31491, an M-8A tail gun mount with K-10 lead-computing sight replaced the

earlier M-7 mount. When production of the B-25J began, both the Inglewood and Kansas City plants were involved. The production block numbers distinguished the two, the California plant having a NA suffix, and Missouri plant production ending in NC.

While the California aircraft had two package guns on either side of the fuselage, the first 555 Kansas City aircraft omitted these. However, beginning with 44-29111 the Kansas City planes had a second, fixed, forward-firing fifty caliber machine gun installed inside the glass nose, directly above the first one. This type of installation was retrofitted to other Mitchells at the Townsville, Australia

modification center as well.

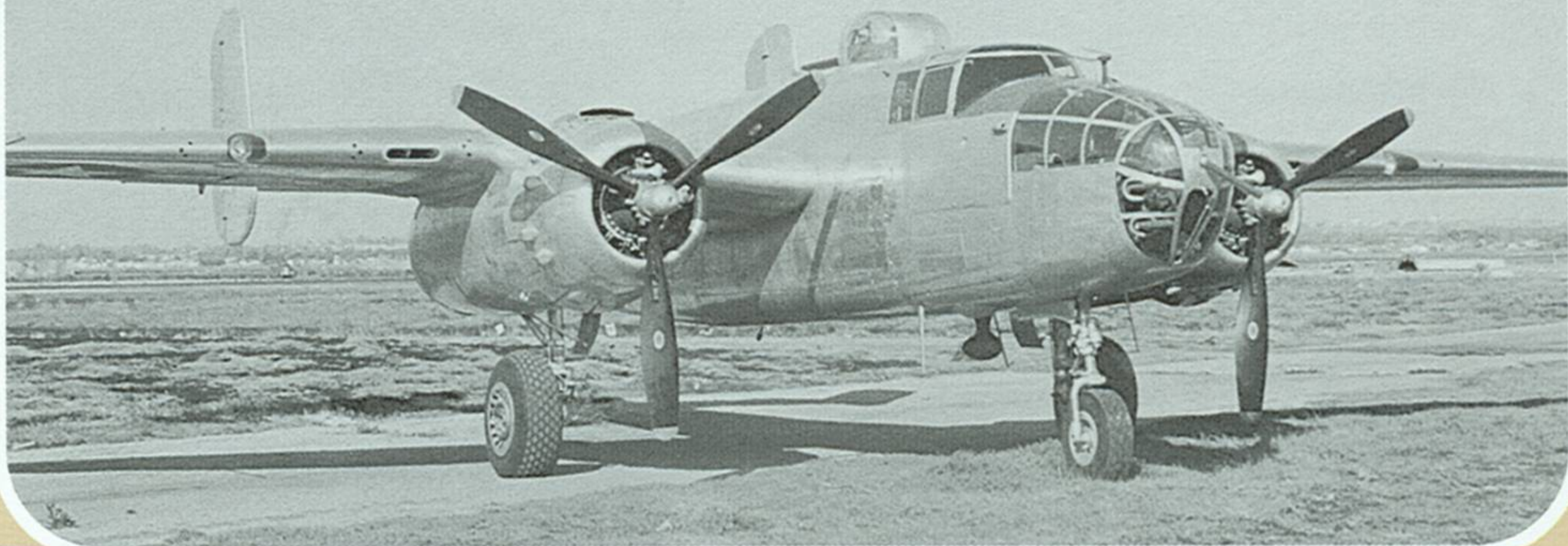
During the course of production, several minor changes were made in gun sights, electrical and hydraulic apparatus. Also, new armored seats for the pilot and copilot were devised and installed, the flexible nose gun mounting was raised, and the rear of the top turret was reinforced. Although no longer armed with the 75mm cannon, the Mitchell was still used in the strafer role. Toward that end, one thousand kits were produced which permitted the installation of a solid nose in place of the greenhouse bombardier's position. This solid nose housed a whopping eight fifty-caliber machine guns. Reportedly, some of these kits were installed on aircraft even before they left the factory.

The U.S. Navy owned 244 of the B-25J, which it called the PBJ-1J. The Royal Air Force took delivery of 314 of the machines, dubbing them Mitchell III. A few other countries received considerably lesser numbers of the airplanes.

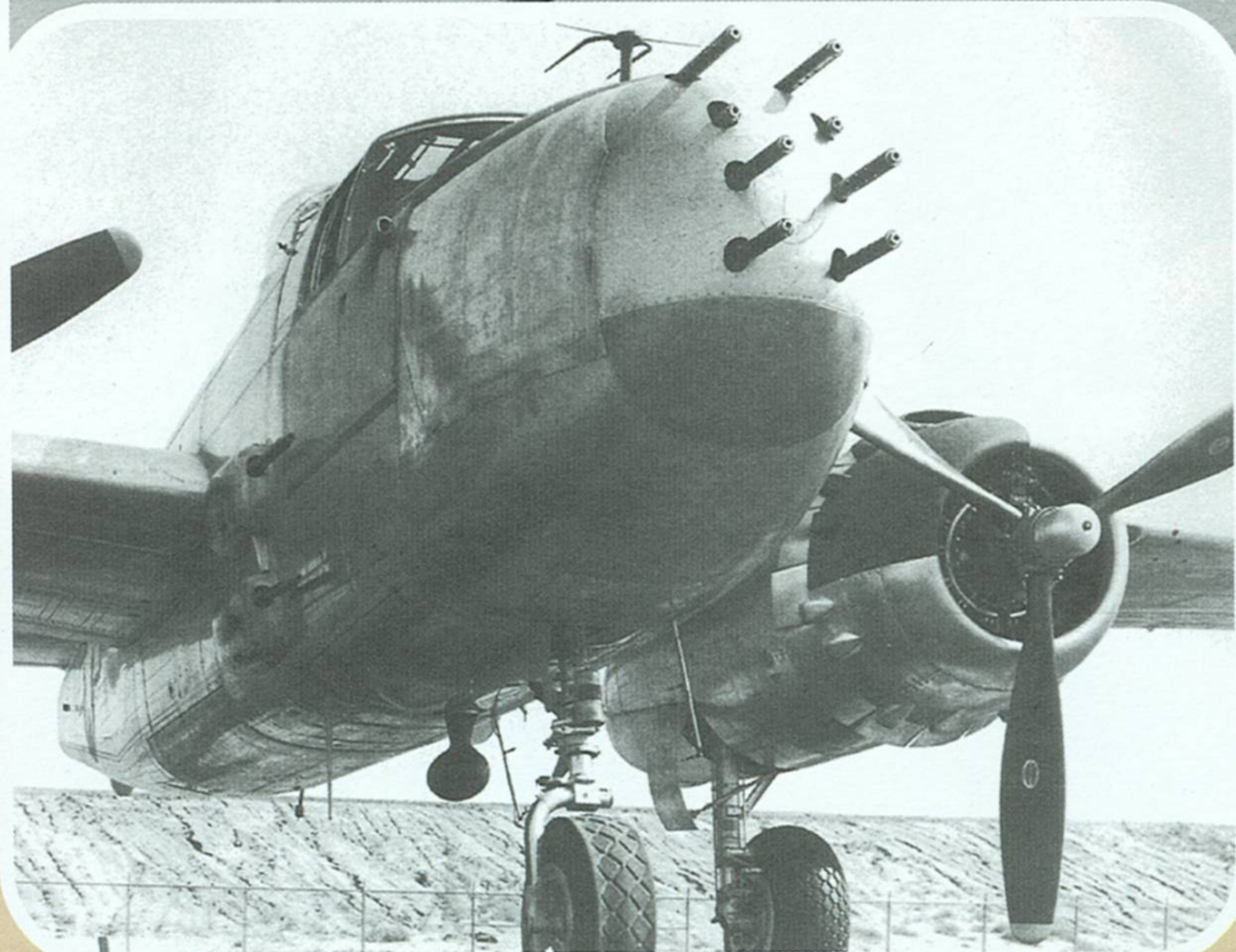
Farewell

In addition to the models listed above, Mitchells served as VIP transport, weather planes, photo recon aircraft and trainers. The U.S. Air Force operated B-25s in non-combat roles well beyond the end of WWII. The final Air Force Mitchell was retired in May 1960.

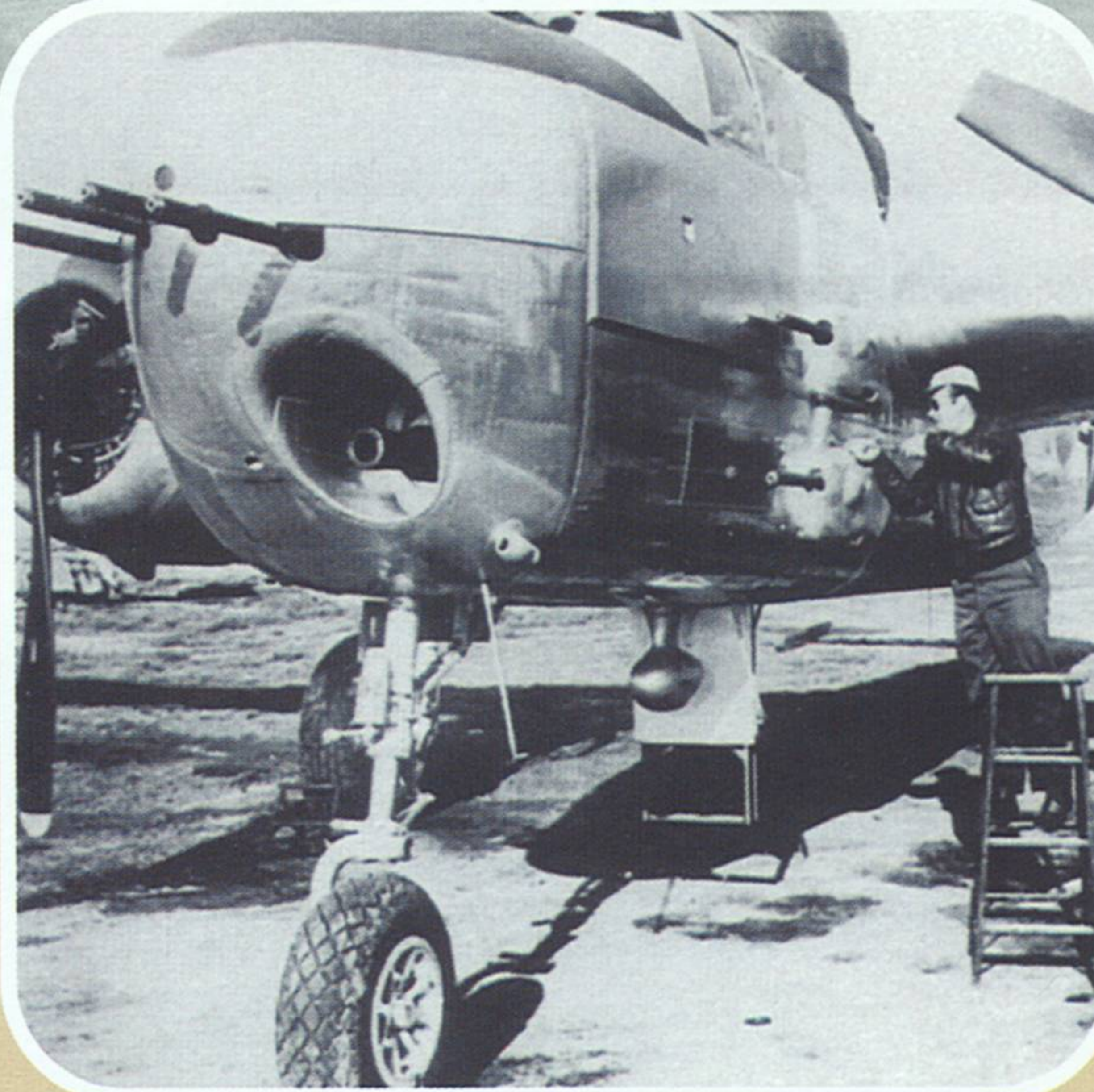
The final production model of the Mitchell was the B-25J, which was also the most plentiful. The J model reintroduced the copilot, and in most examples, the bombardier-housing greenhouse nose. Photo courtesy of the Veteran's Museum, Halls, Tn.



The most dramatic change of the H was the relocation of the upper turret to the navigator's compartment. This, coupled with the deletion of the lower turret, allowed the creation of unimpeded waist gun positions. Photo courtesy of the Veteran's Museum, Halls, Tn.



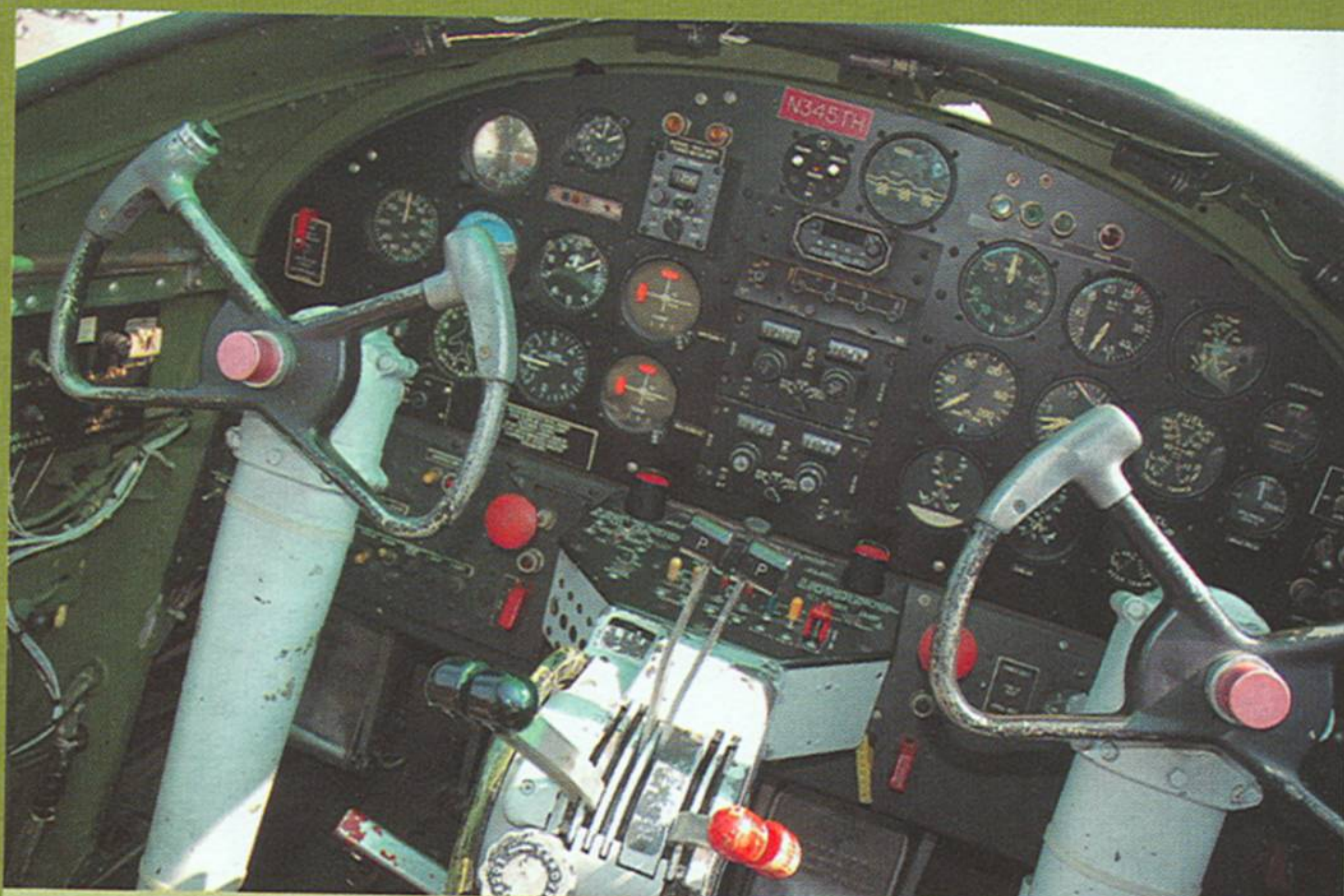
Some of the B-24J were equipped as strafers, this time armed solely with machine guns, no cannon was mounted. The eight-gun nose installation, combined with two blister pack weapons on each side and the top turrets twin fiftys, could bring a withering 14 heavy machine guns to bear on a single target. As one can imagine, the effect was devastating. Photo courtesy of the Veteran's Museum, Halls, Tn.



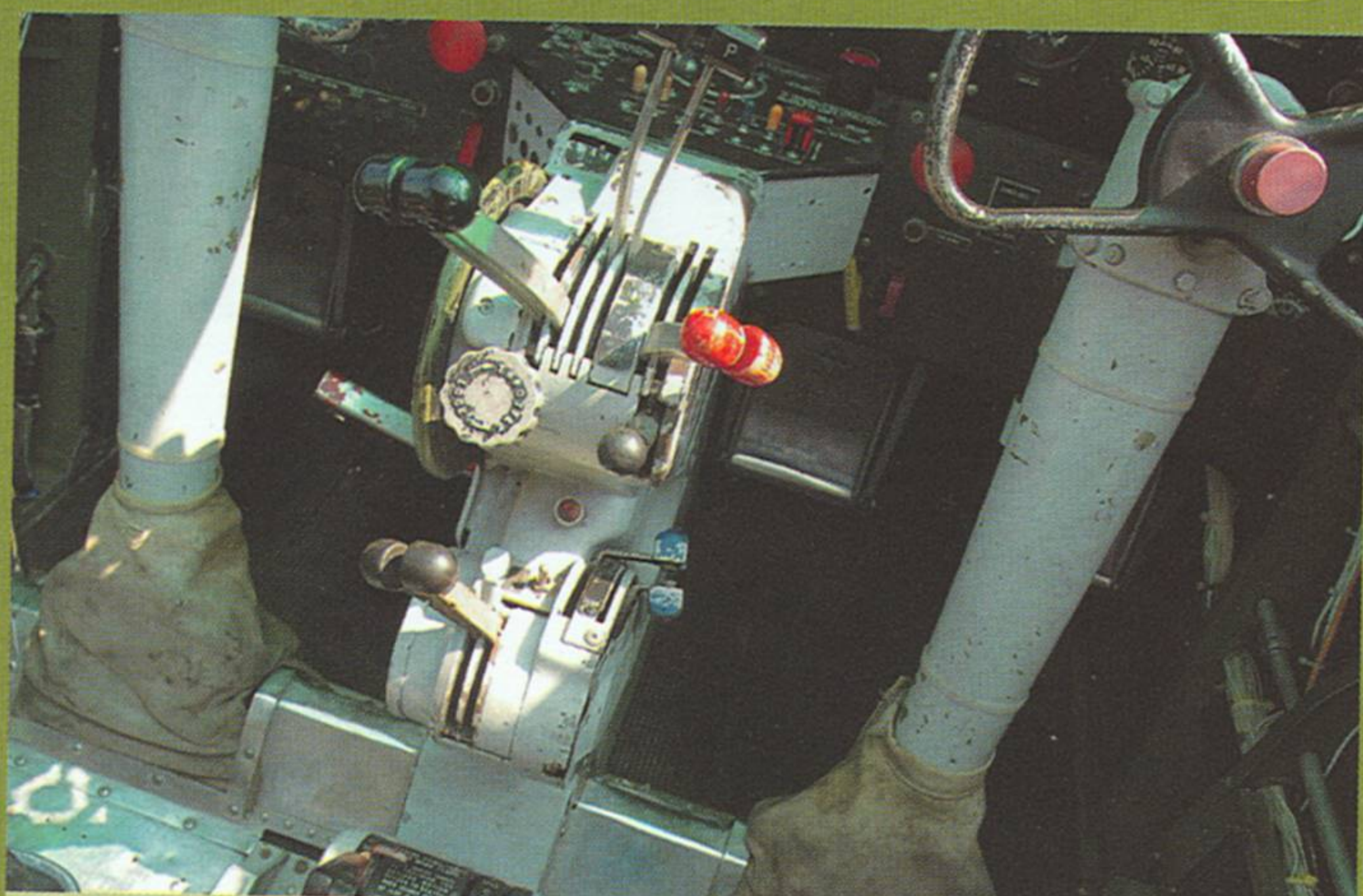
The two nose-mounted fifty-caliber machine guns of the B-25G were augmented with two more guns in the nose of the B-25H. Additionally, blister gun packs were added to the sides of the fuselage; first two on the right side, and later, two more on the left side. Photo courtesy of the Veteran's Museum, Halls, Tn.



An overall view looking up into the cockpit.
(Photo David Doyle)



The instrument panel and control columns with signs of heavy wear. (Photo David Doyle)



The central control binnacle. Note the unpainted floor panels.
(Photo David Doyle)



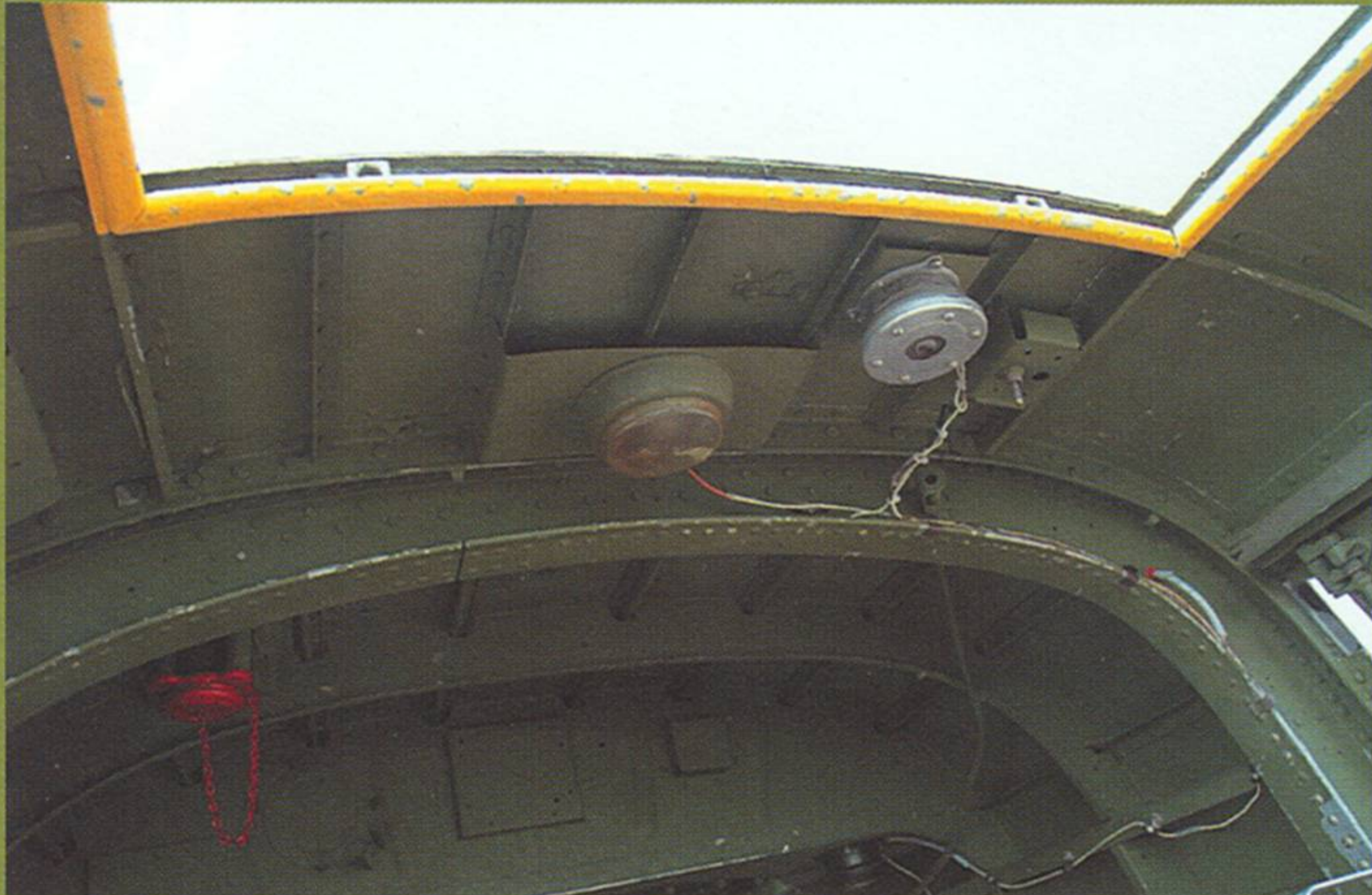
Another view of the control column, the wooden pole on the left is in fact a flagpole sticking out of the open window.
(Photo David Doyle)



One of the big comfy looking pilots seats.
(Photo David Doyle)



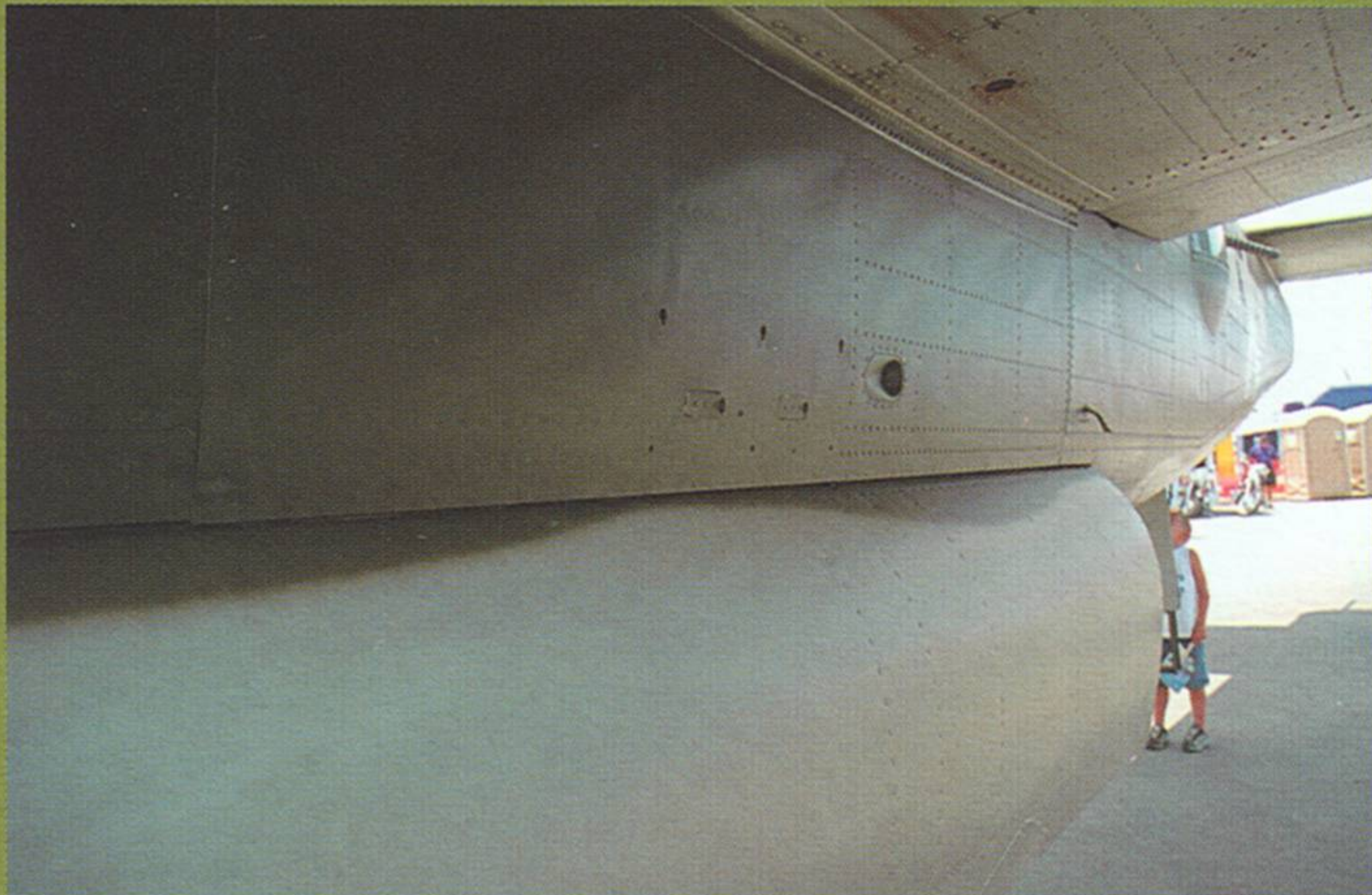
The instrument panel and canopy - note the light fittings for the instruments. (Photo David Doyle)



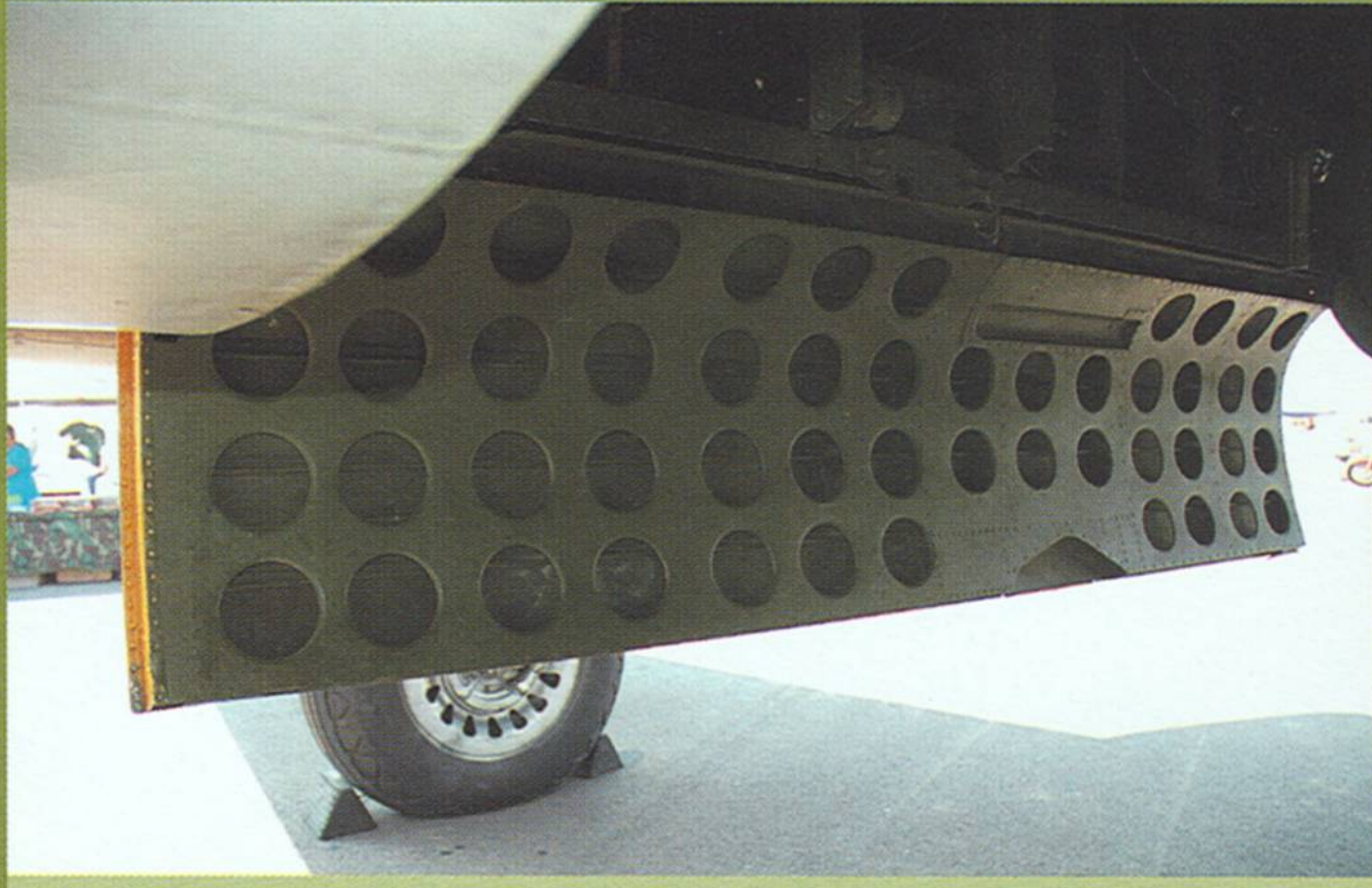
A view behind the pilots seats to the open escape hatch.
(Photo David Doyle)



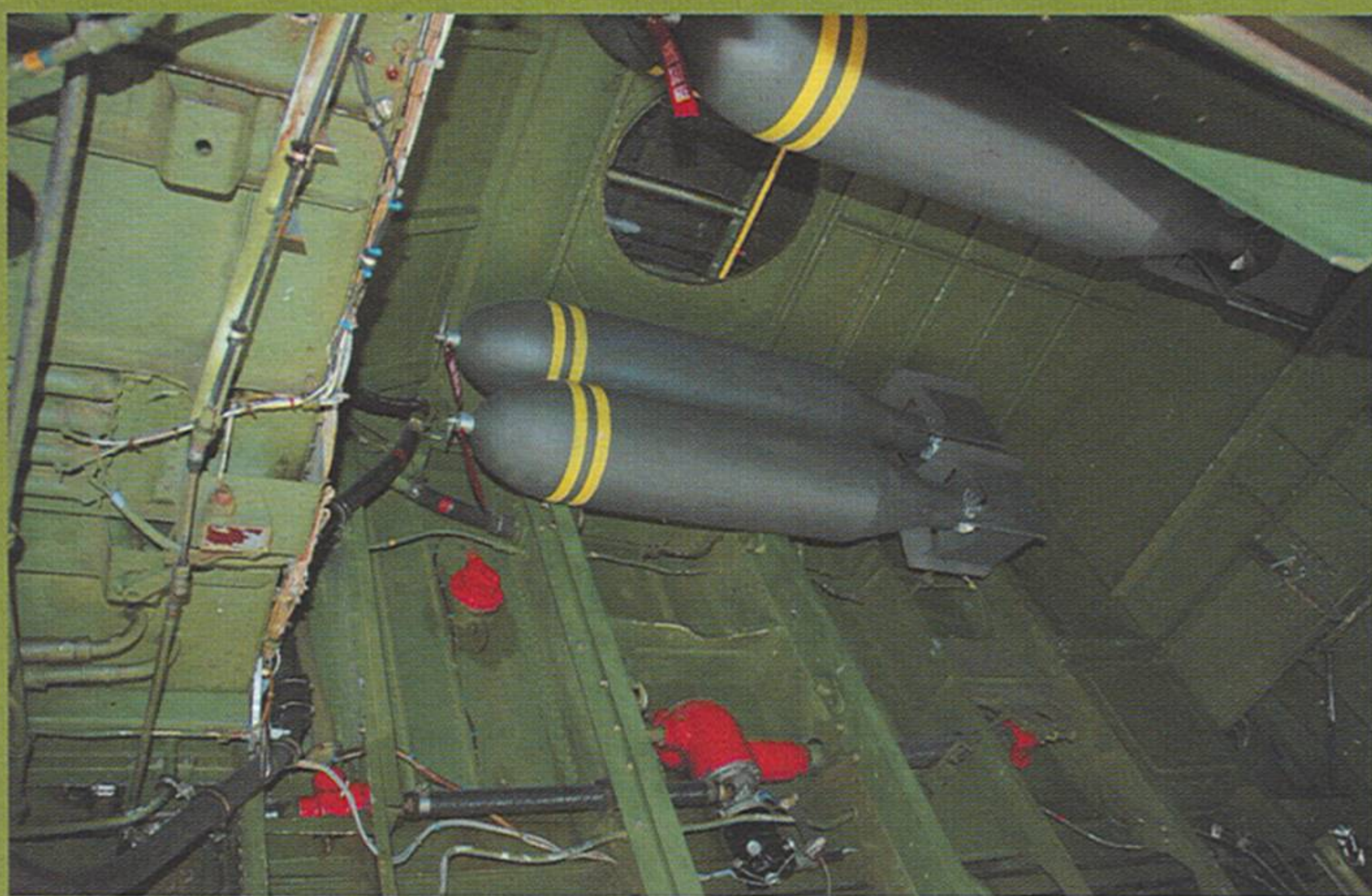
The same hatch viewed from the outside. (Photo David Doyle)



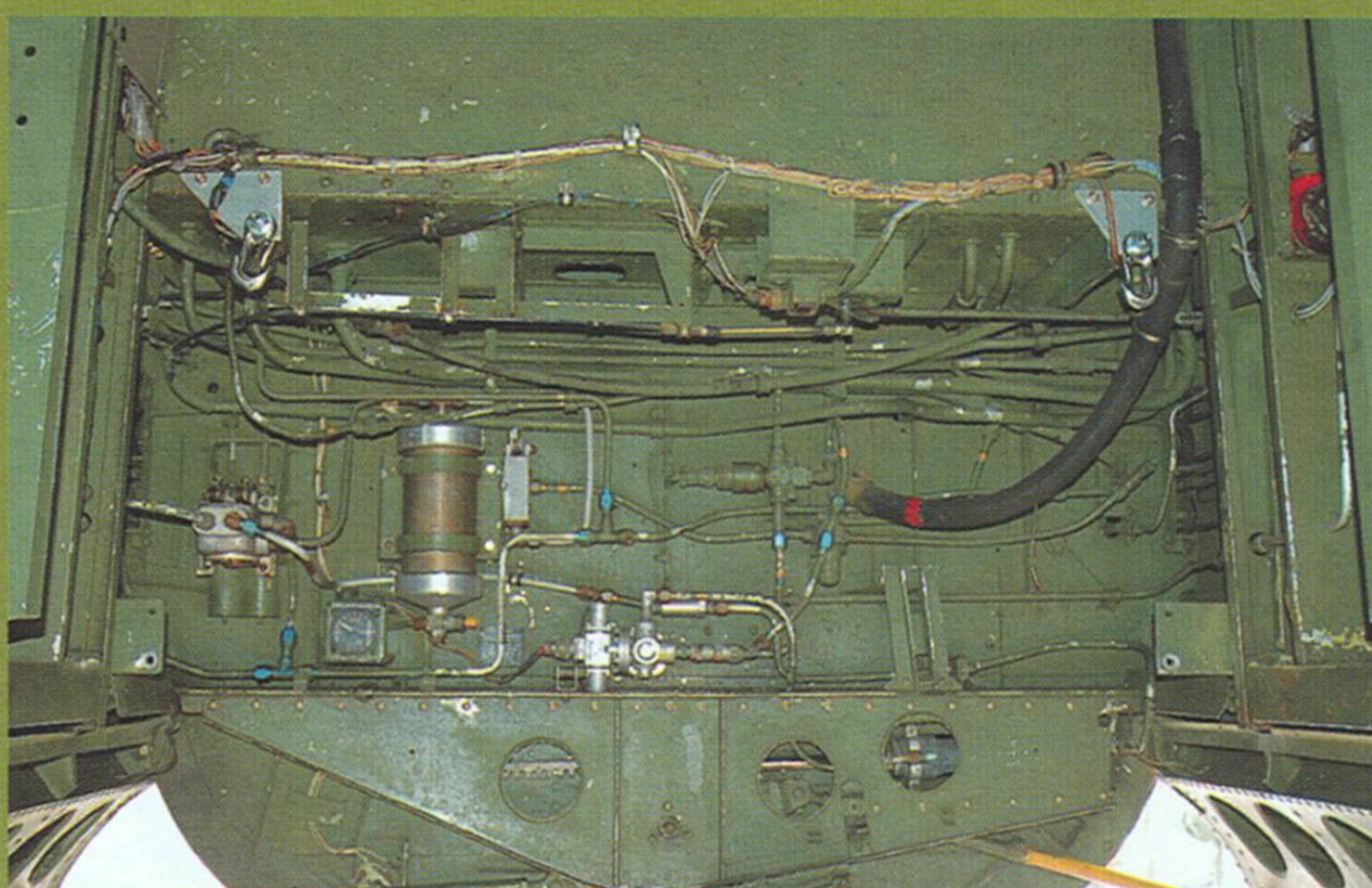
The exterior of the open bomb bay doors. (Photo David Doyle)



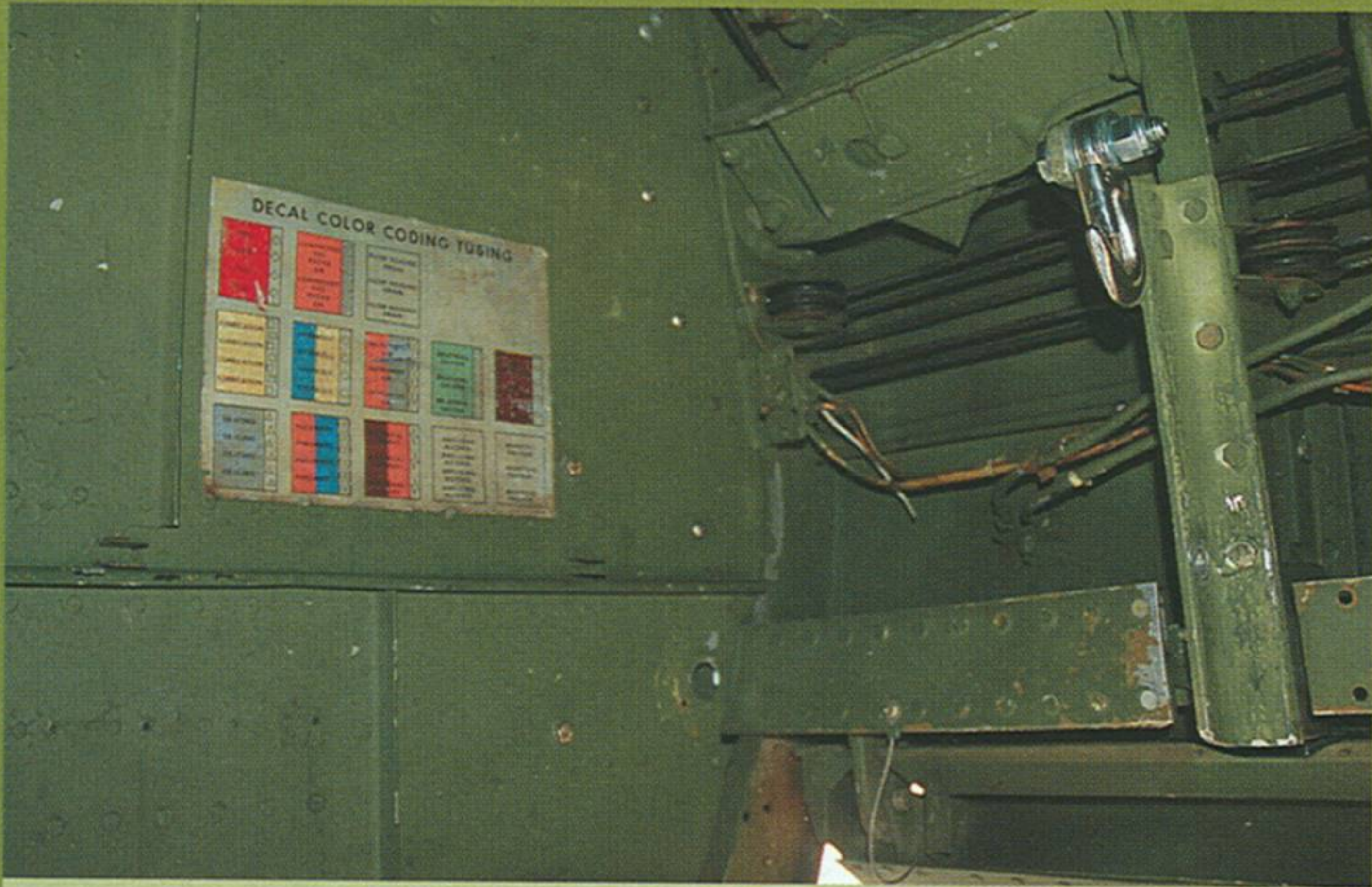
The inside face of the doors.
(Photo David Doyle)



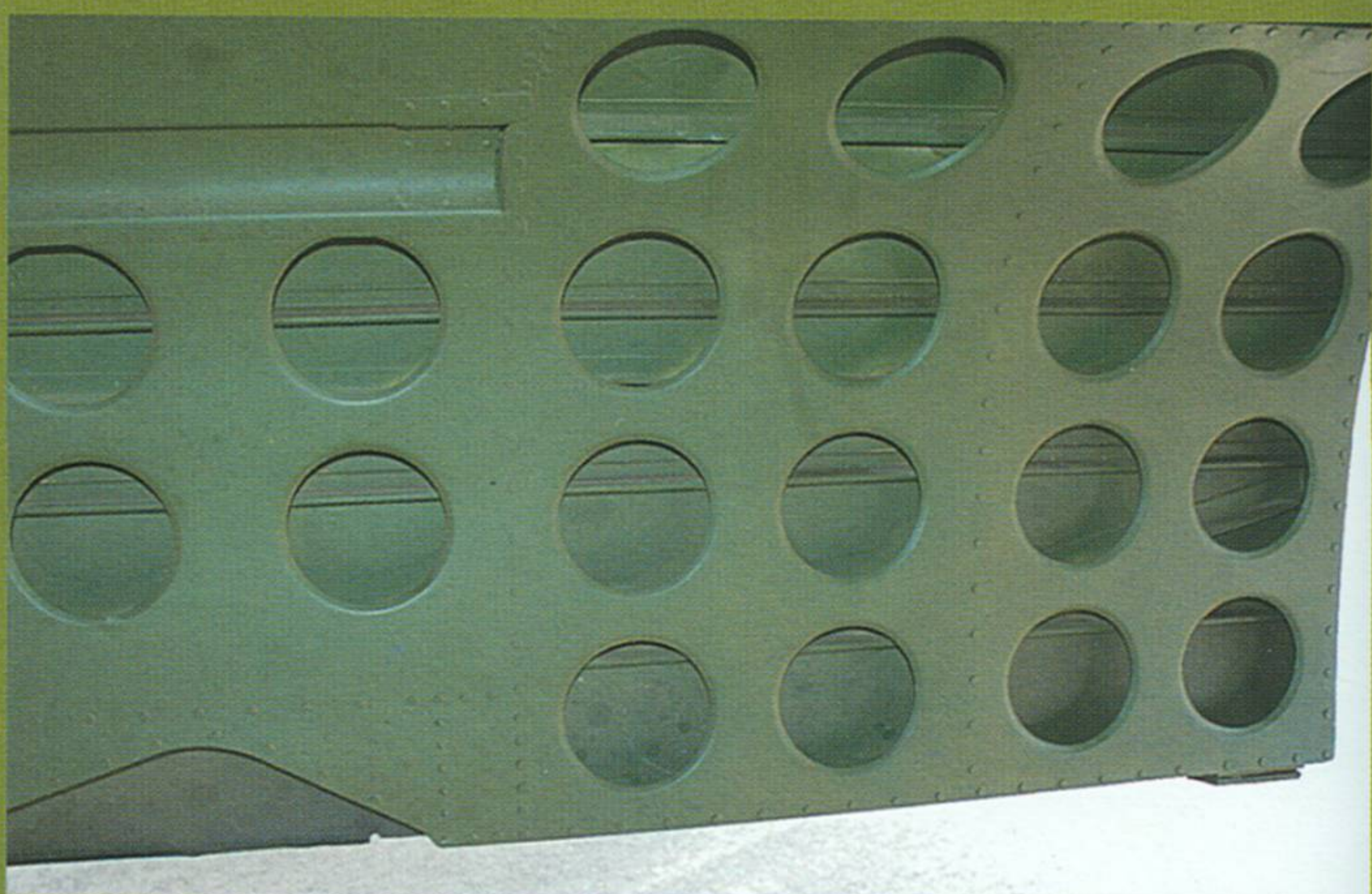
A view looking up into the bomb bay complete with bomb load!
(Photo David Doyle)



A good detailed shot of the plumbing on the forward bomb bay bulkhead. (Photo David Doyle)



A wiring colour coding diagram on the rear bulkhead .
(Photo David Doyle)



A close up of the bomb bay doors.
(Photo David Doyle)



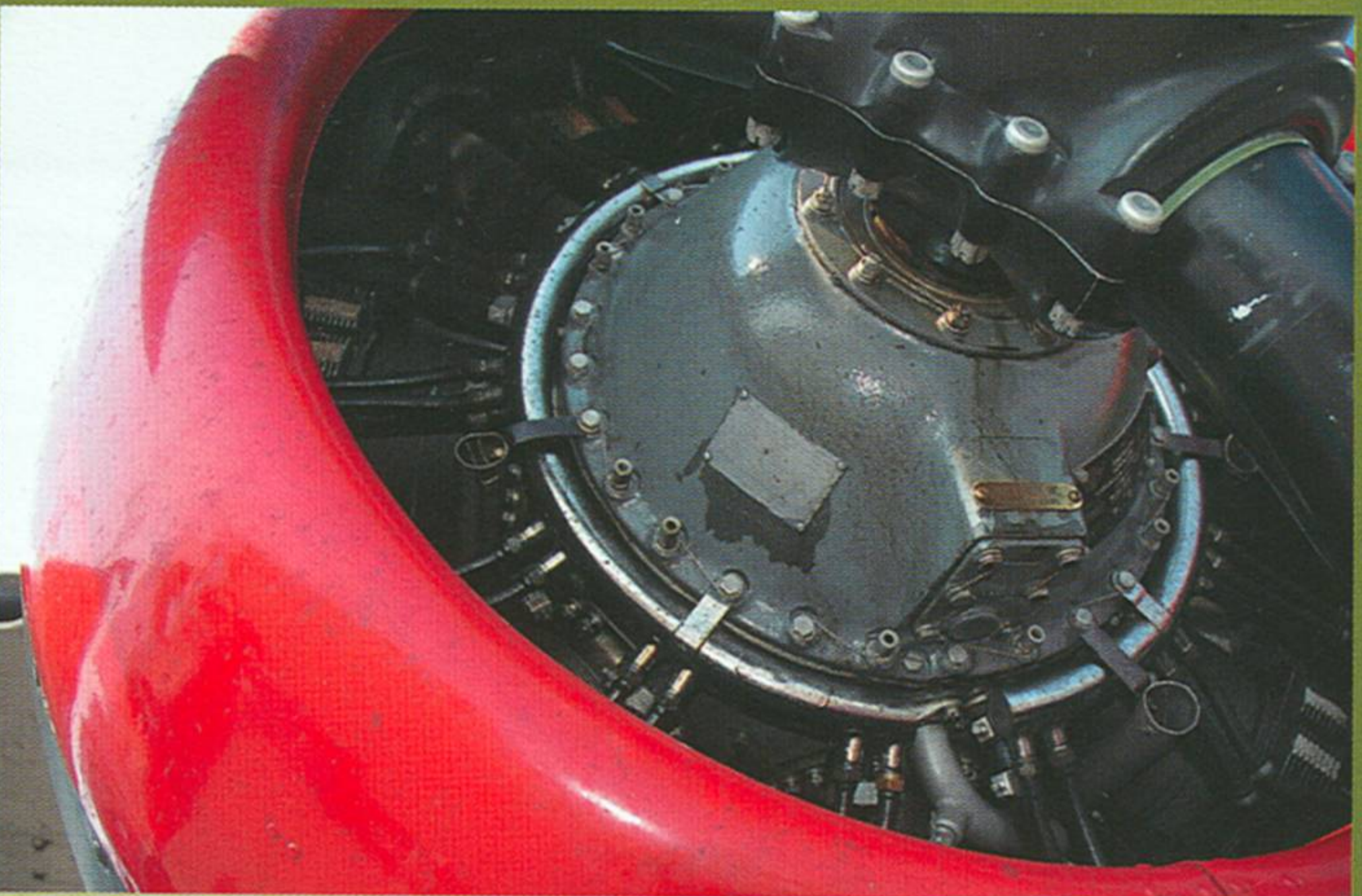
A close up of the bomb racks. (Photo David Doyle)



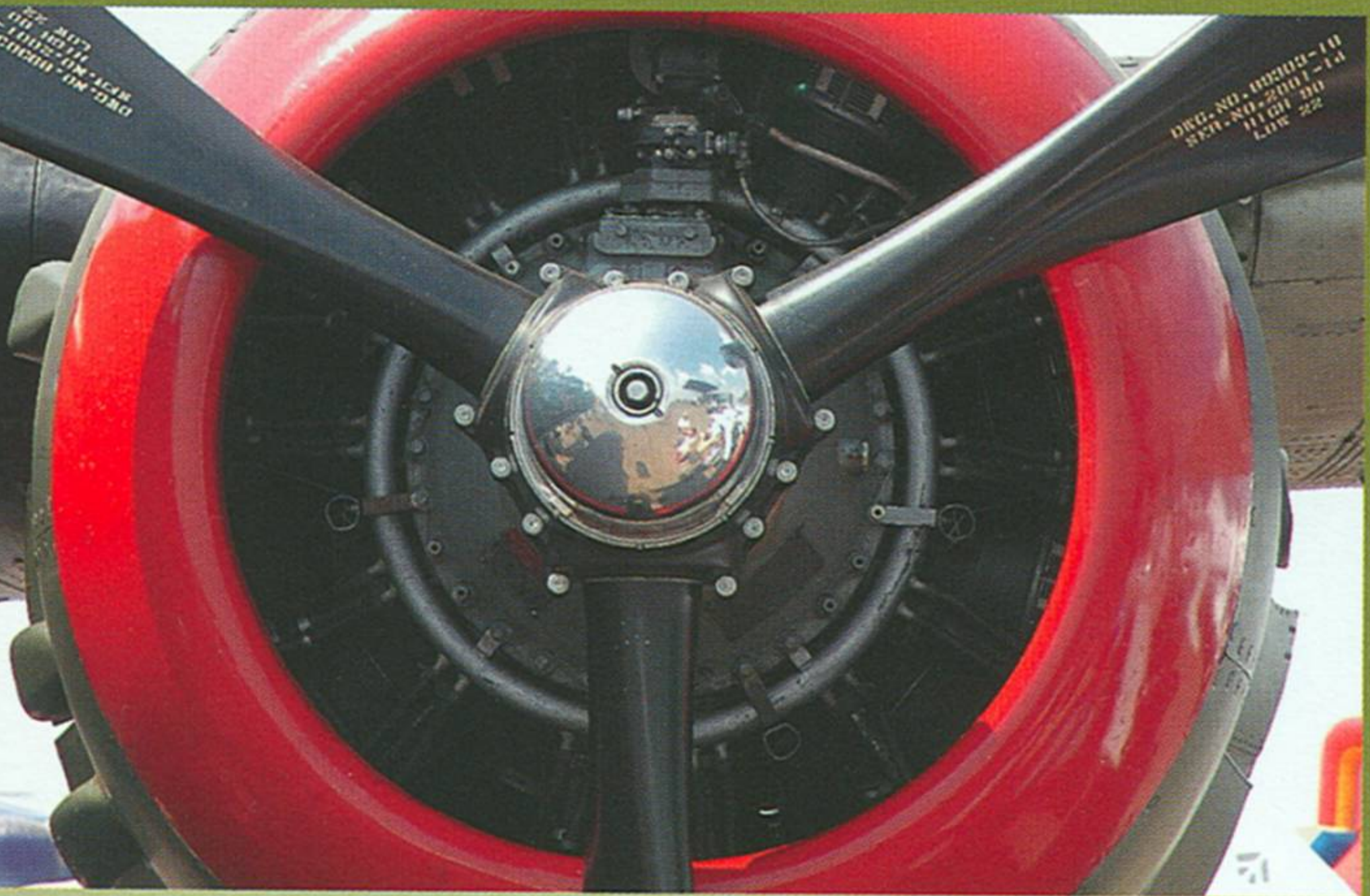
An overall view of the engine cowling. This aircraft has a semi-collector exhaust for the seven upper cylinders, and individual stacks for the lower. This was a common modification performed postwar by the Air Force. (Photo David Doyle)



Clayton "S" type flame dampening stack of the type that began to be installed beginning during B-25C production.
(Photo David Doyle)



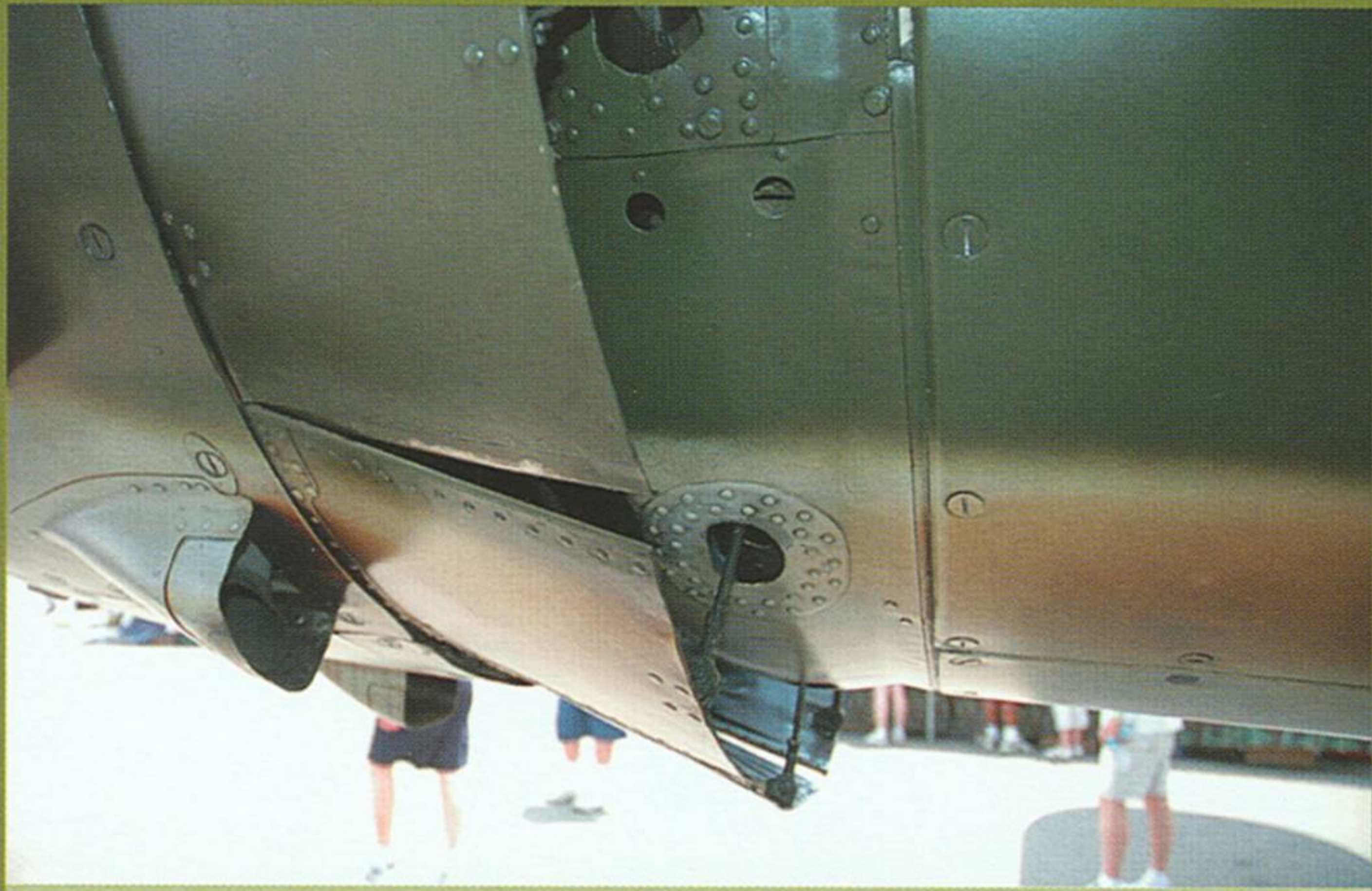
The B-25J was powered by twin Wright R-2600-29 14-cylinder radial engines. (Photo David Doyle)



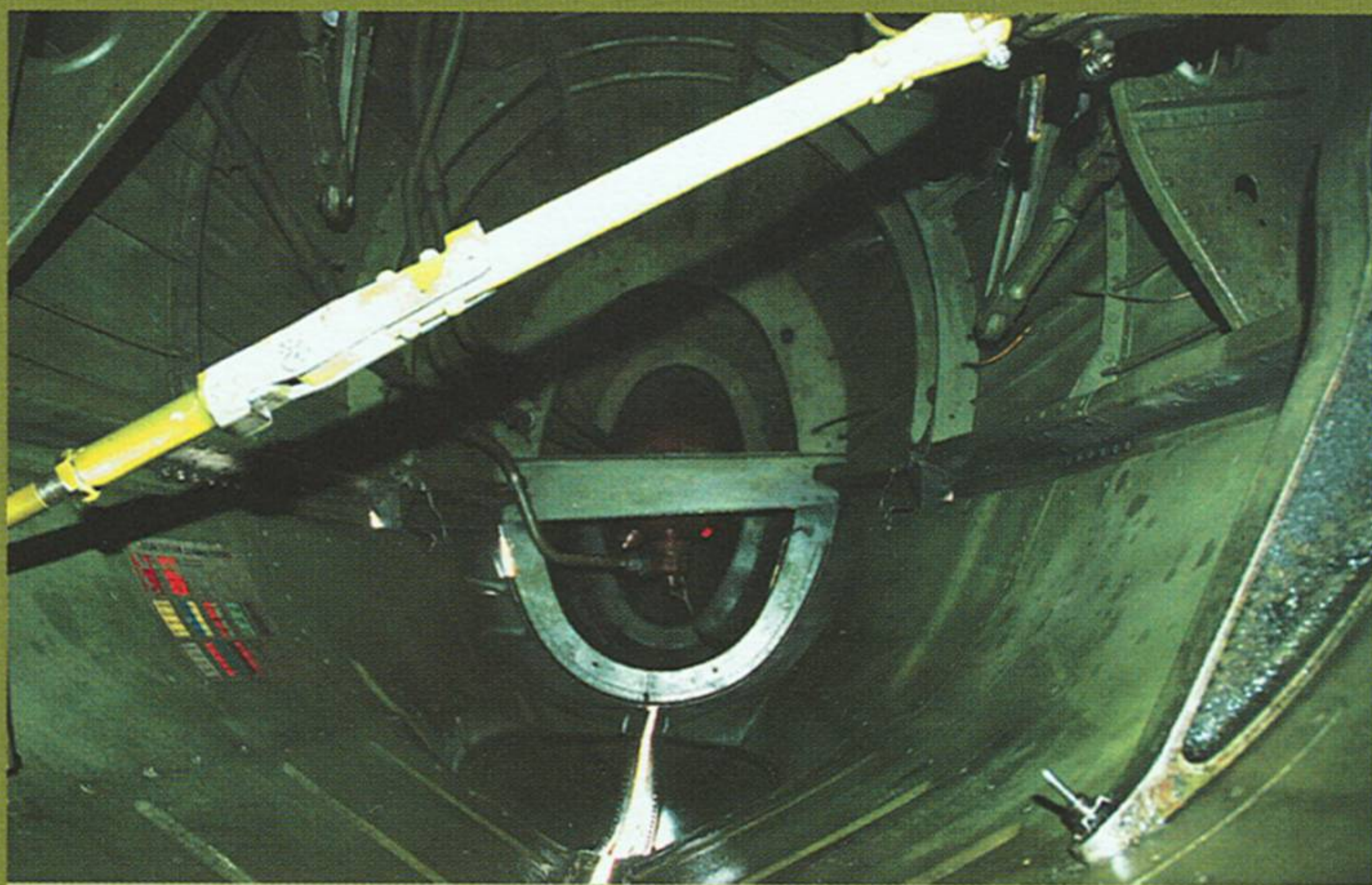
Three-bladed Hamilton Standard constant-speed propeller.
(Photo David Doyle)



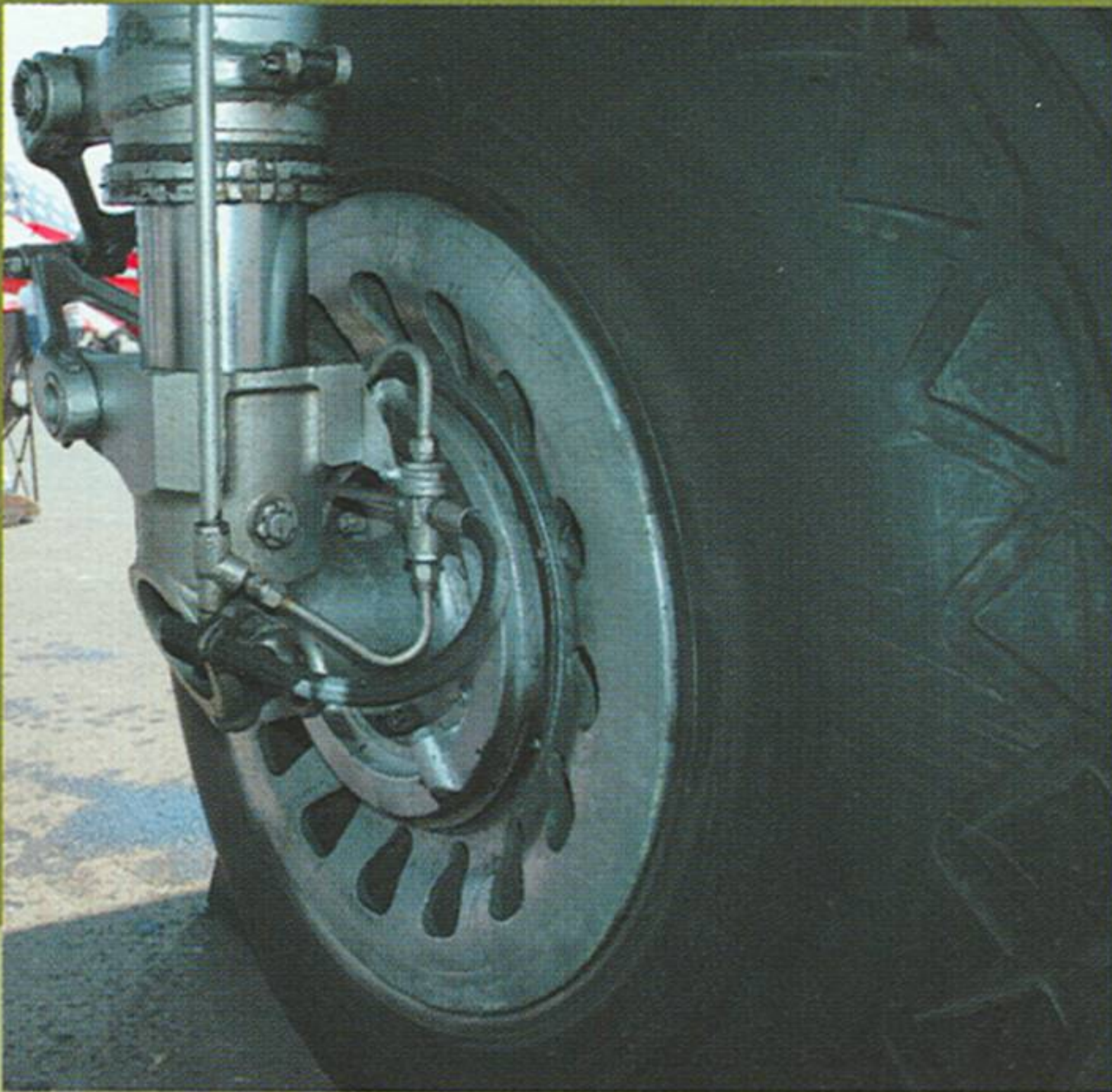
A detailed view of the air intake on top of the engine cowling.
(Photo David Doyle)



(Photo David Doyle)



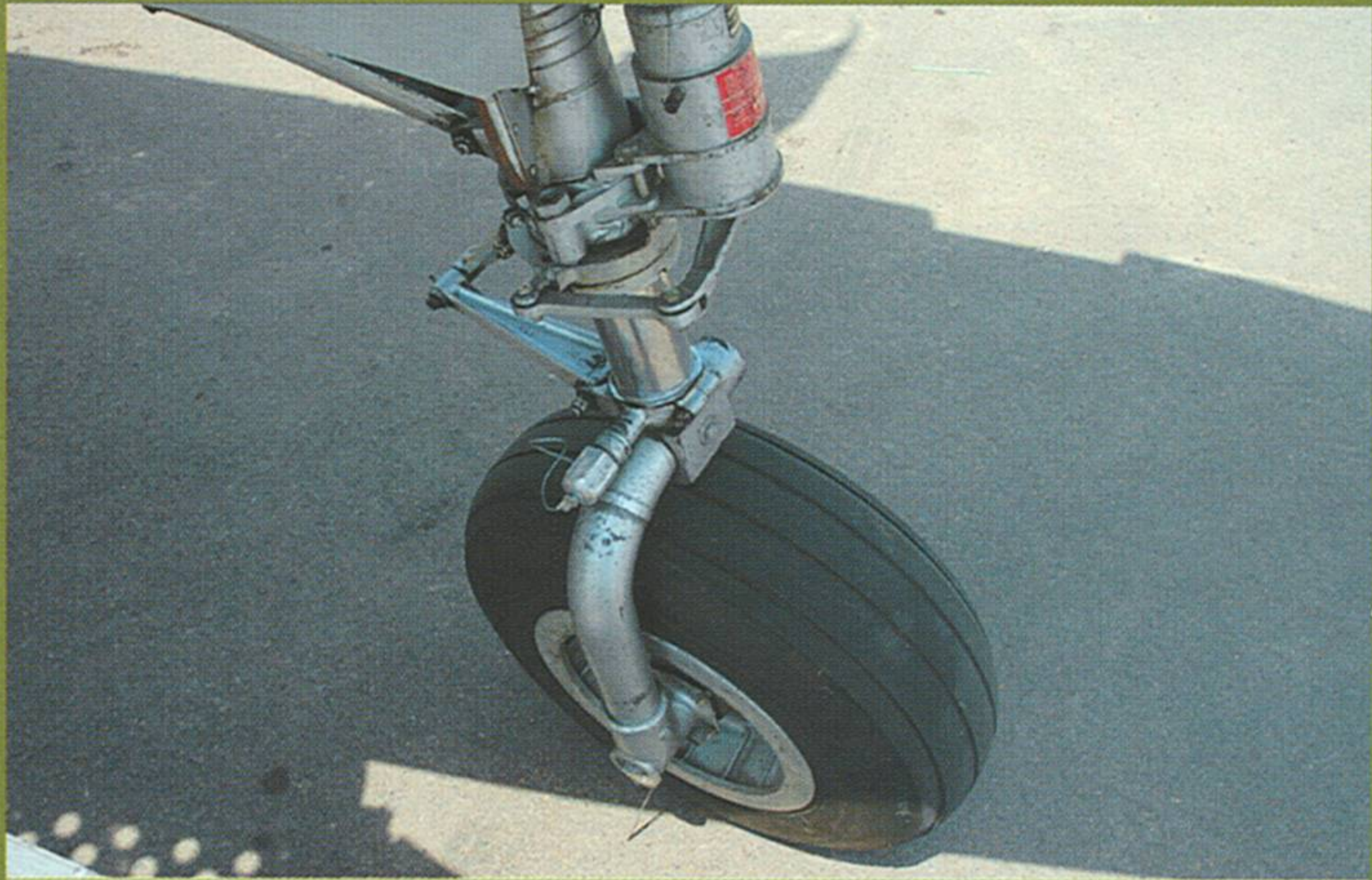
A view looking to the rear of the engine nacelle.
(Photo David Doyle)



Three views of the main wheel showing the arrangement of the brake cabling (Photo David Doyle)



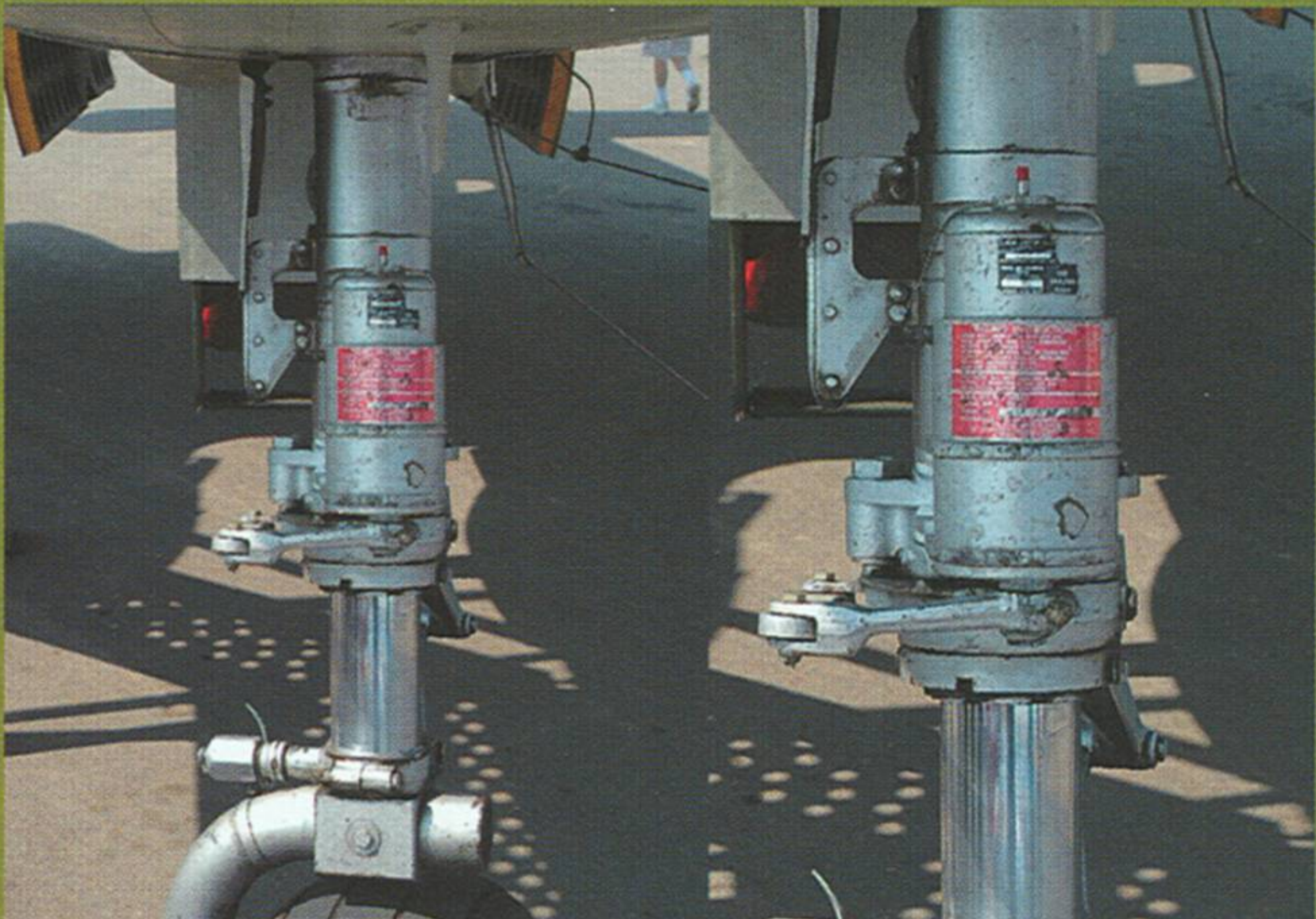
A close up of the actuating struts for the undercarriage doors.
(Photo David Doyle)



The nose wheel. (Photo David Doyle)



Two overall views of the nose wheel.
(Photo David Doyle)



Details of the nose wheel strut with manufacturers labels.
(Photo David Doyle)



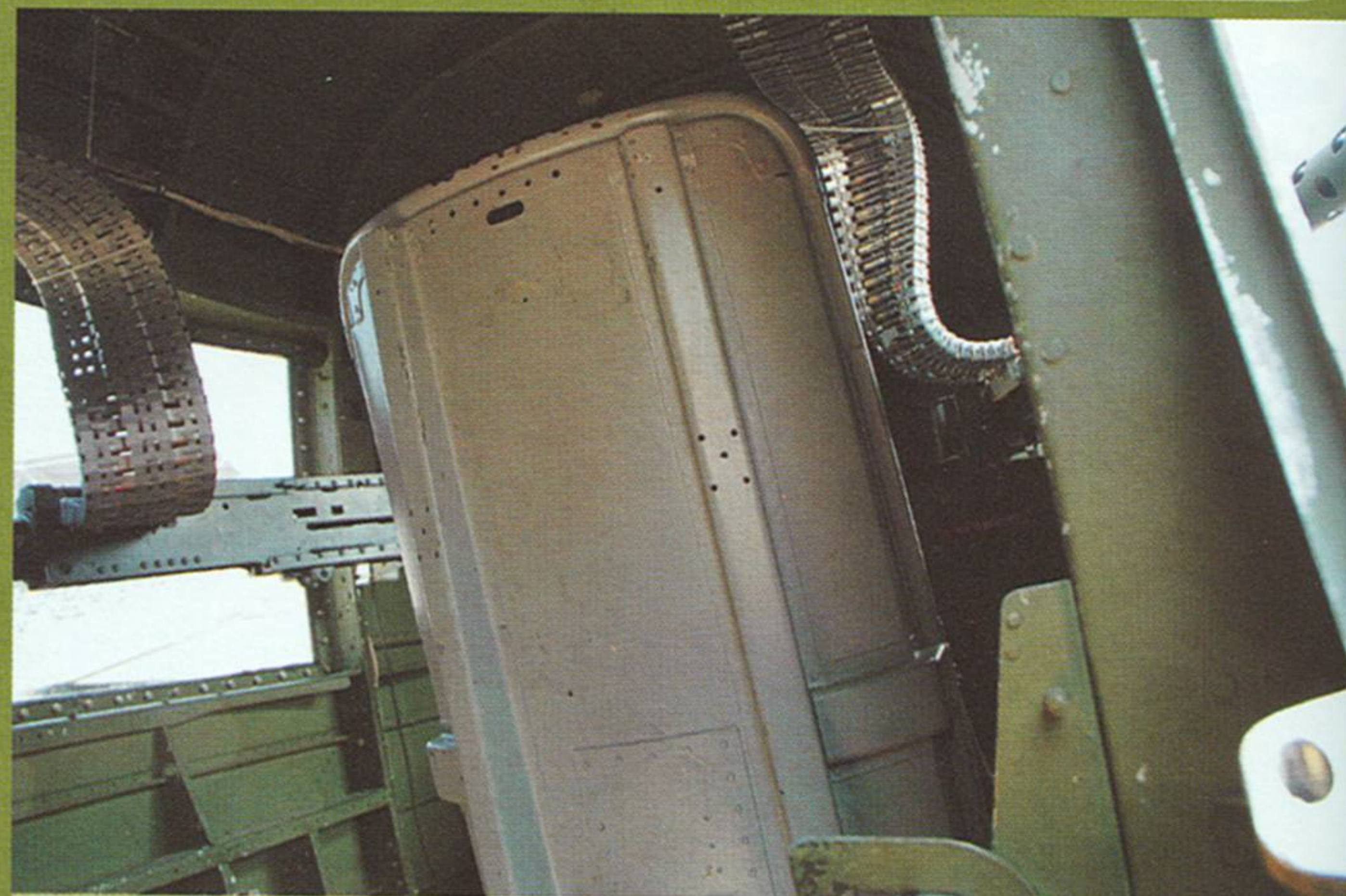
The waist gun mounting.
(Photo David Doyle)



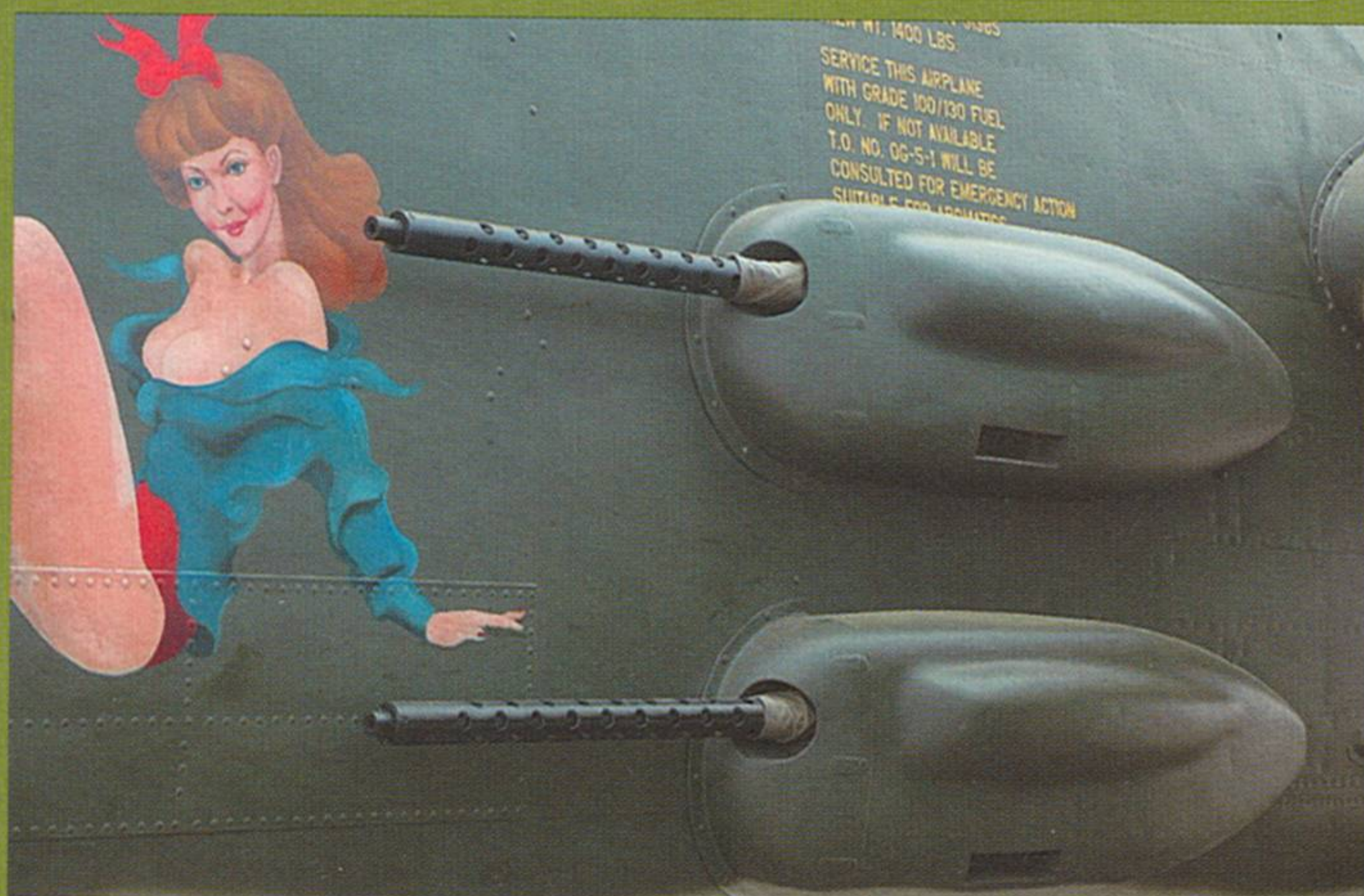
A view looking back along the fuselage side from the waist position (Photo David Doyle)



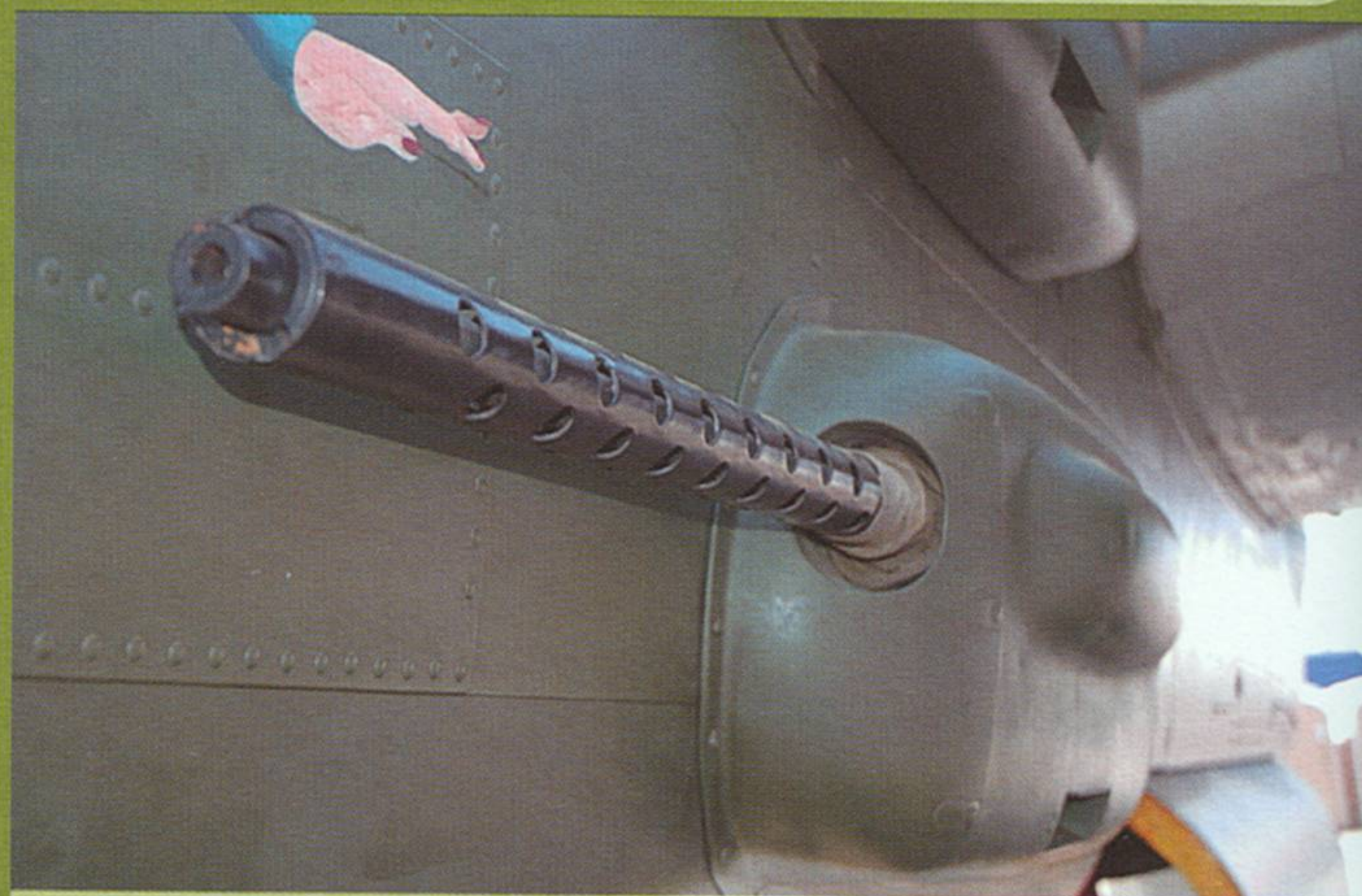
The inside of the fuselage showing the ammunition feeds for the .50 Cal guns. (Photo David Doyle)



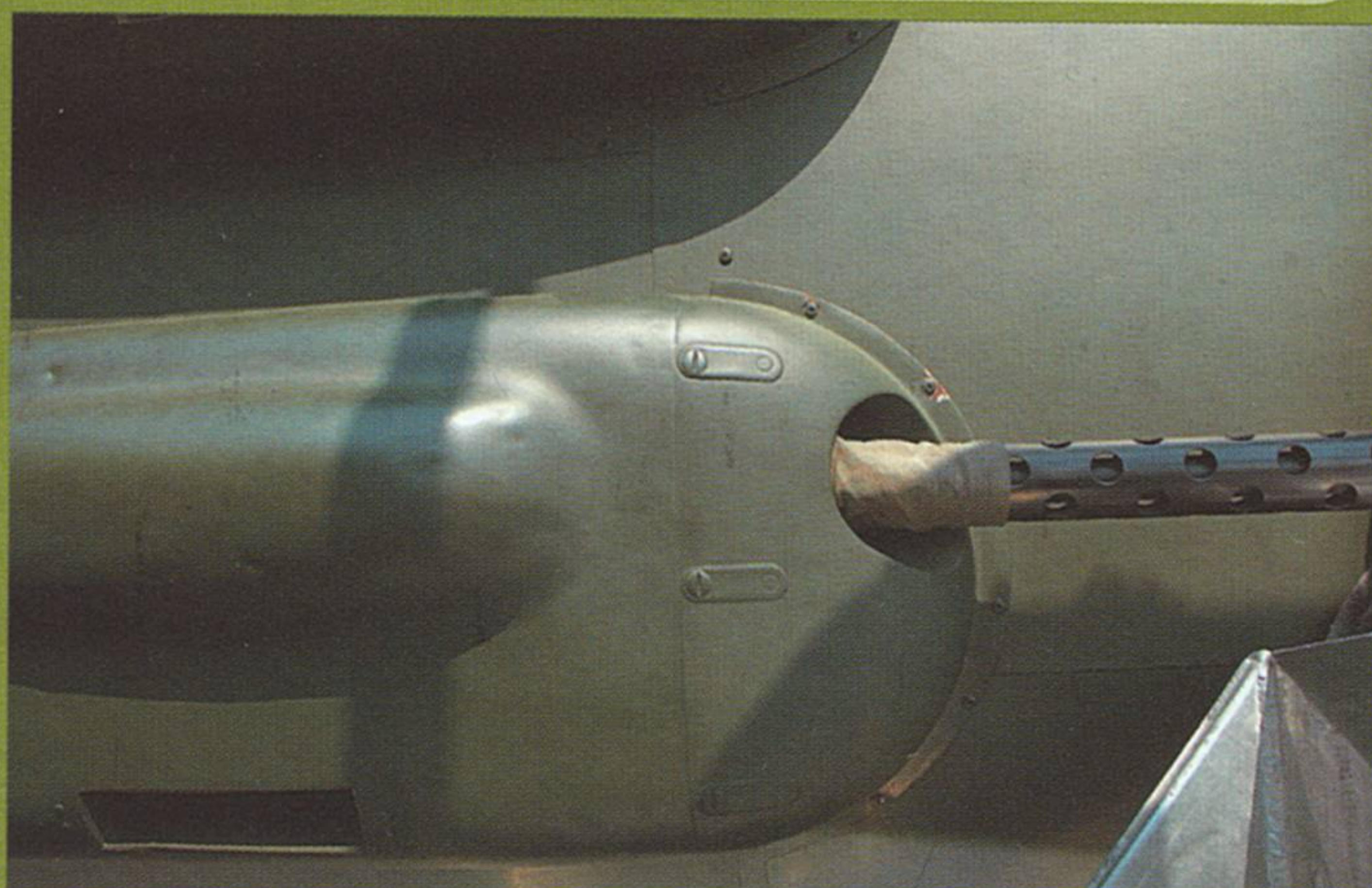
The seat shown between the gun mounts is a postwar addition, and not found on combat aircraft. (Photo David Doyle)



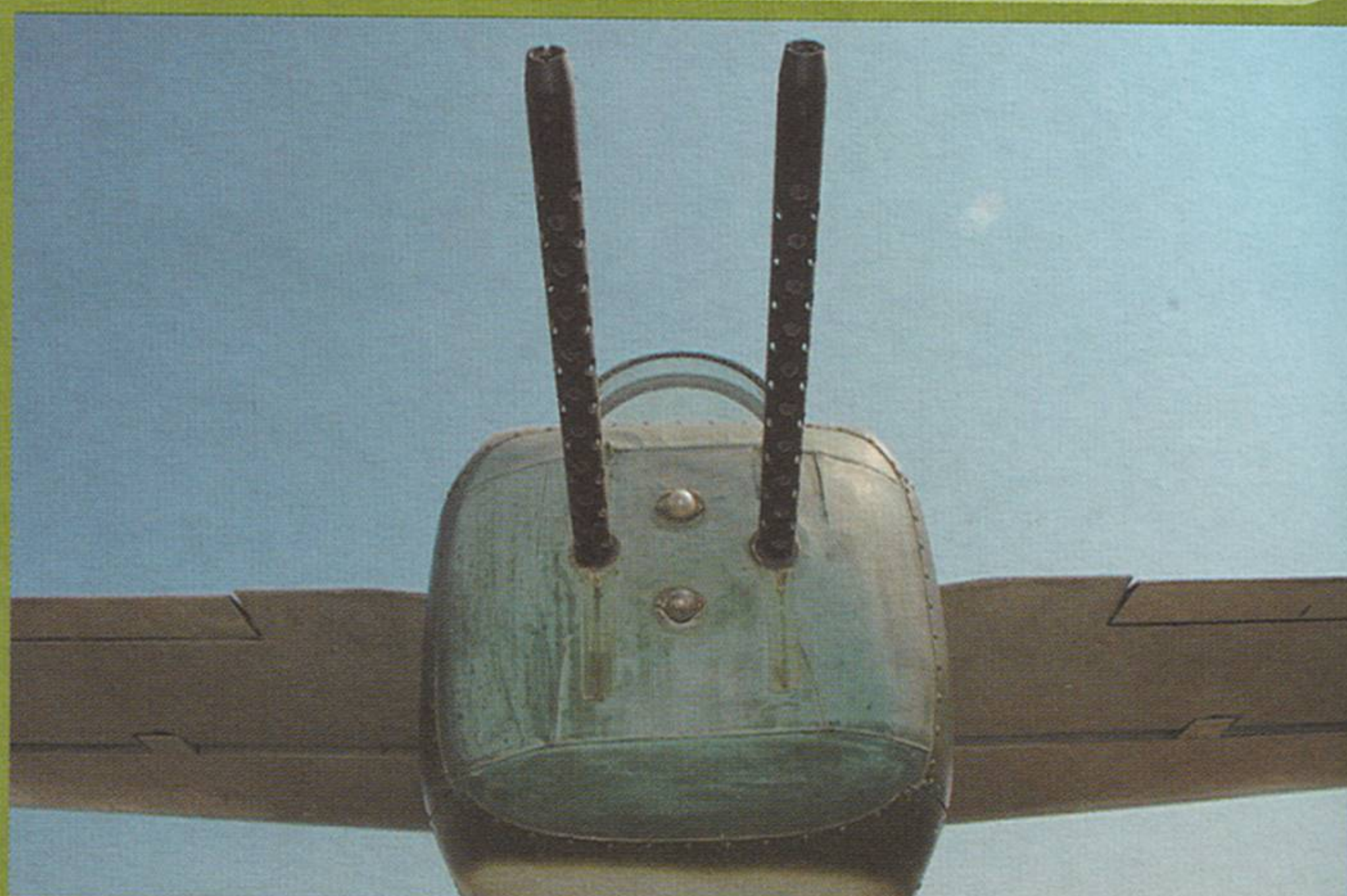
The twin MG pods mounted just behind the cockpit.
(Photo David Doyle)



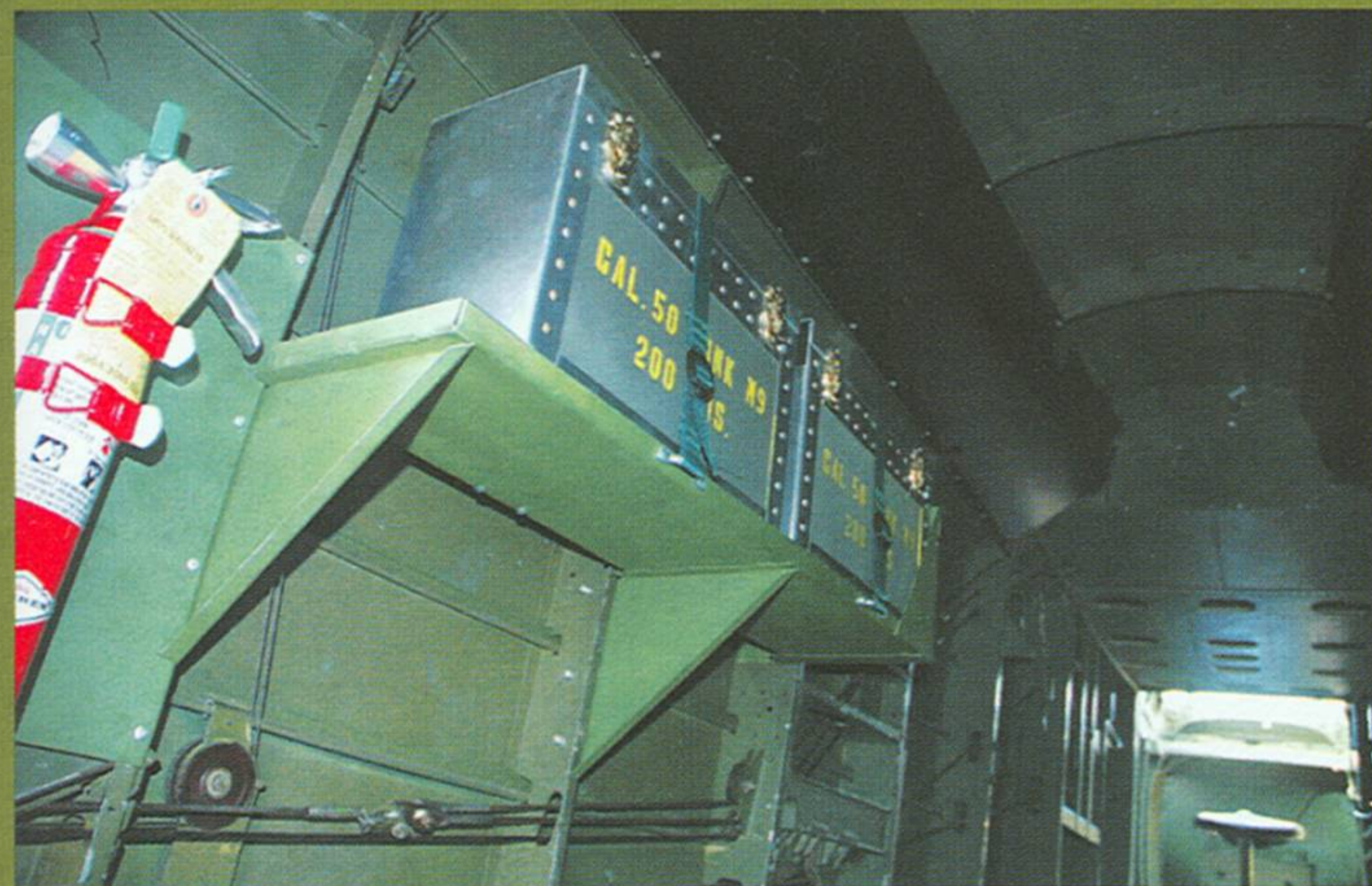
Notice the canvas cover protecting the breach.
(Photo David Doyle)



A close up of the fairing.
(Photo David Doyle)



The twin .50 cal tail guns with details of the zip fastened canvas cover. (Photo David Doyle)



The ammunition stowage racks in the rear fuselage with the tail gunners seat just visible.
(Photo David Doyle)



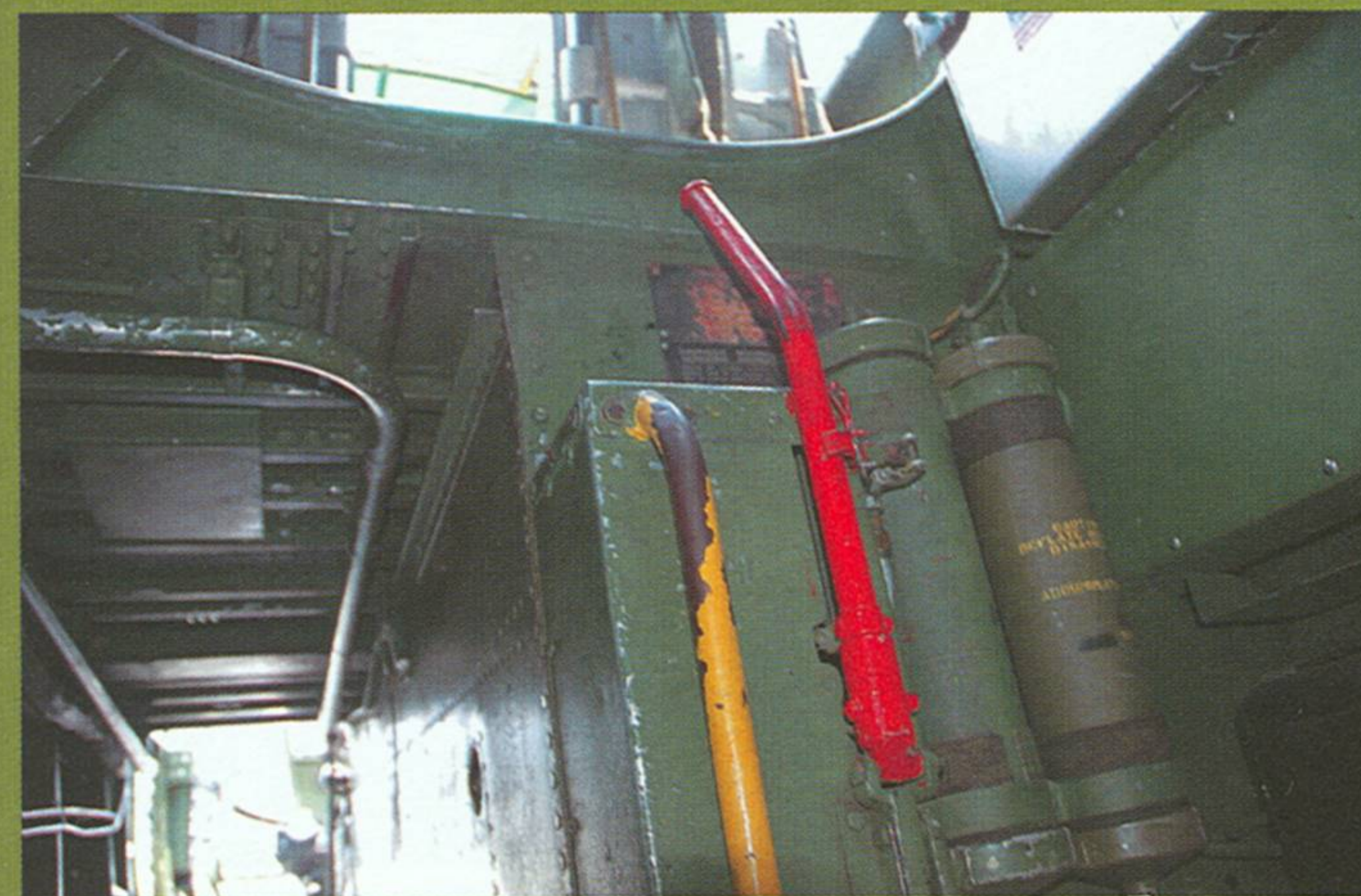
The tail gun position.
(Photo David Doyle)



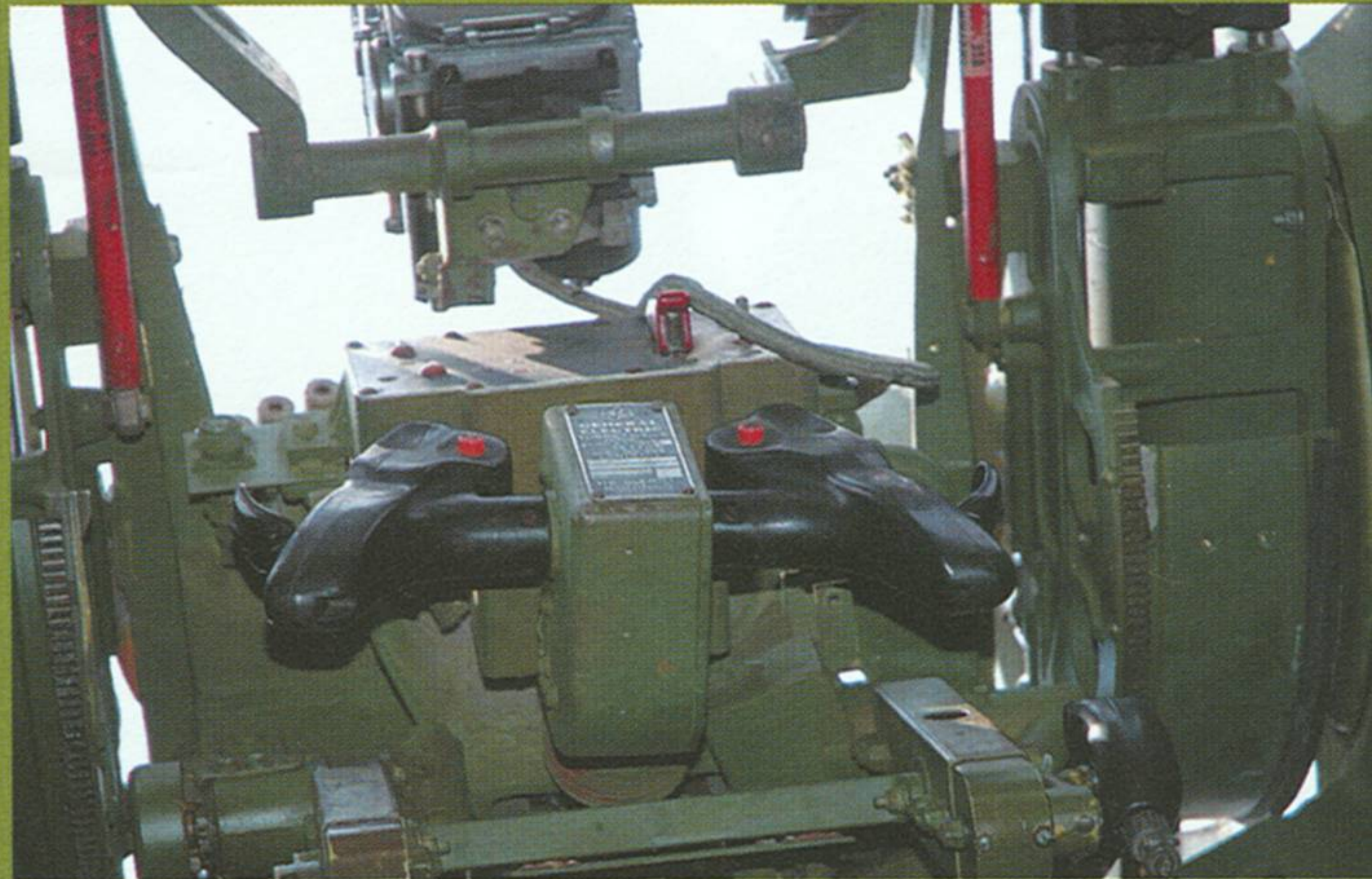
The upper gun turret facing aft.
(Photo David Doyle)



Another view of the turret The armored deflector visible just aft of the gun is one of a pair added beginning with the H model to protect the tail gunner from accidental firings.(Photo David Doyle)



A view looking along the access passage to the nose from behind the flightdeck. (Photo David Doyle)



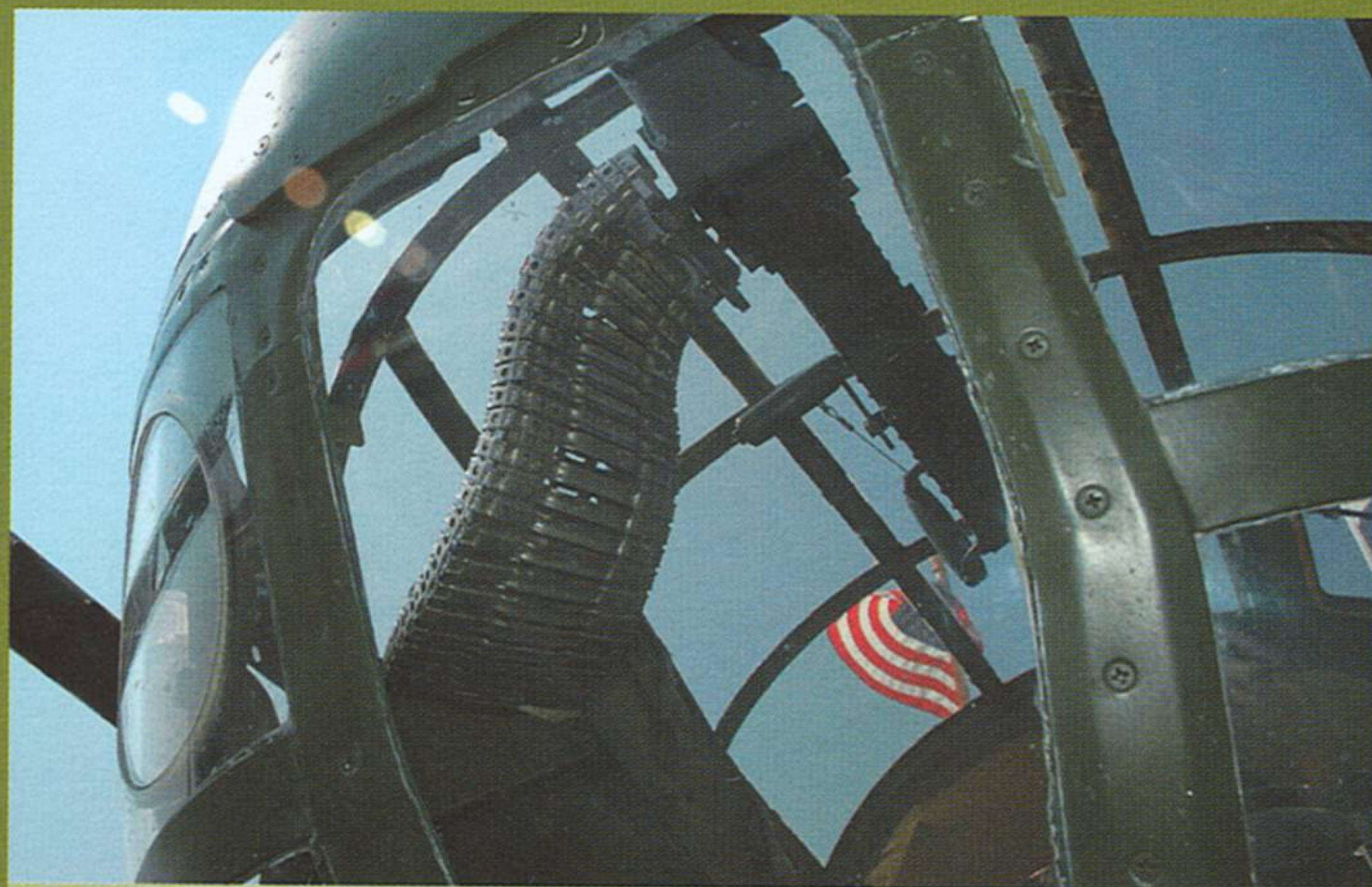
The upper turret viewed from below showing the handgrip controls and gunsight.
(Photo David Doyle)



A view looking up from behind the flightdeck to the upper gun turret. (Photo David Doyle)



The nose with its MG mounts. (Photo David Doyle)



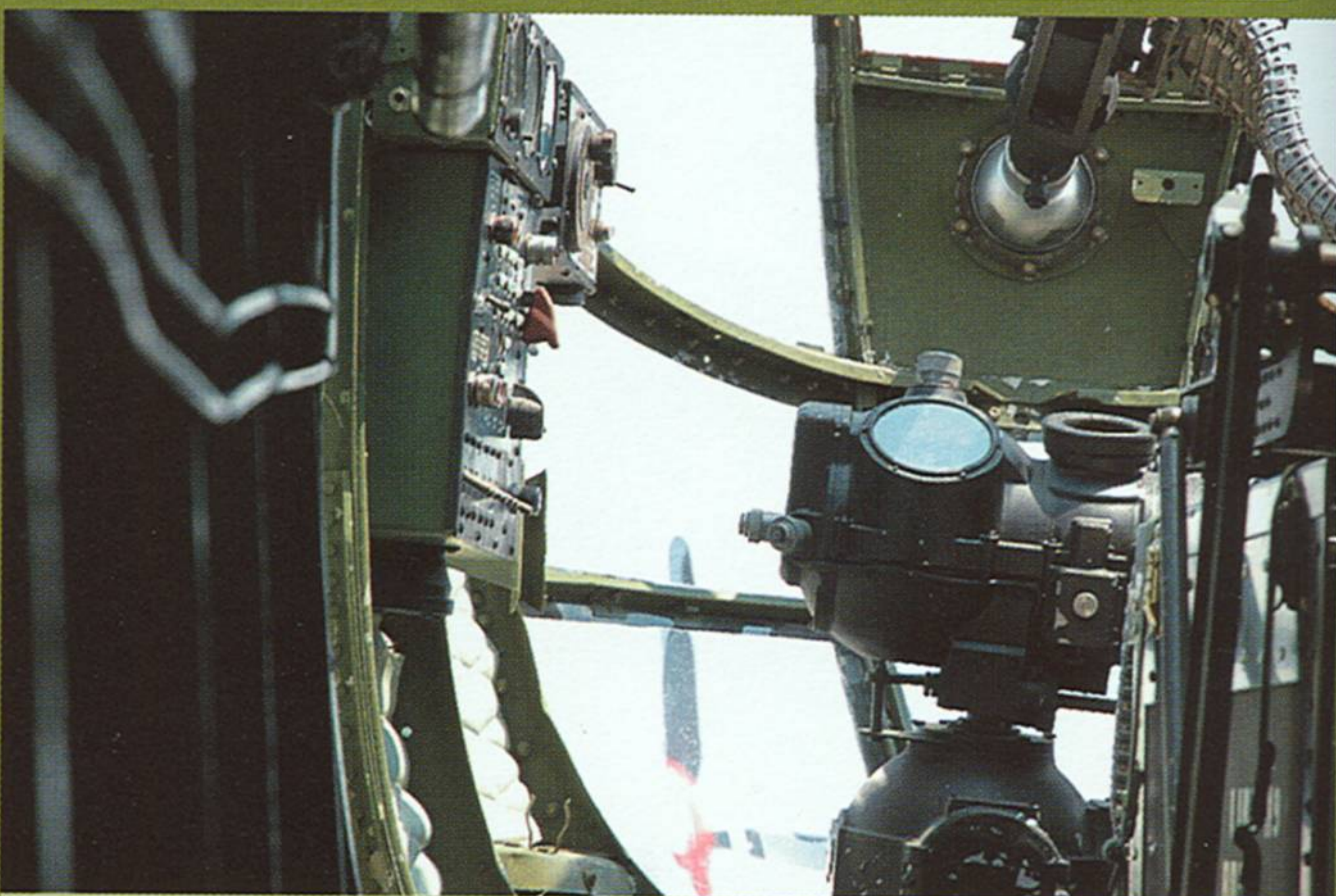
The ammunition feed chute for the central MG (Photo David Doyle)



The interior of the nose viewed from the access corridor.
(Photo David Doyle)



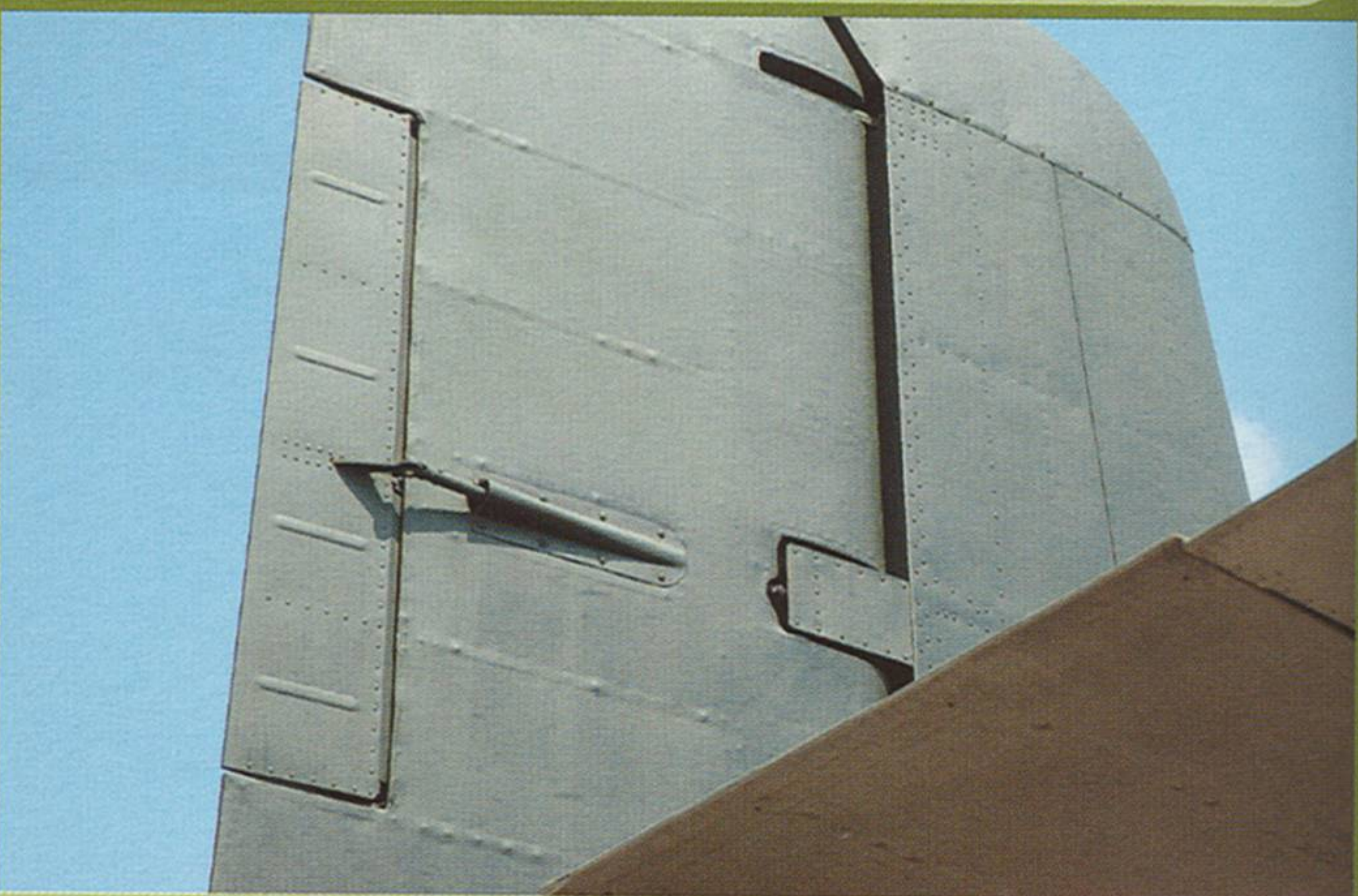
A close up of the nose. (Photo David Doyle)



The bomb sight (Photo David Doyle)



The ball mount for the central MG. (Photo David Doyle)



A detail view of one of the tail stabilisers.
(Photo David Doyle)



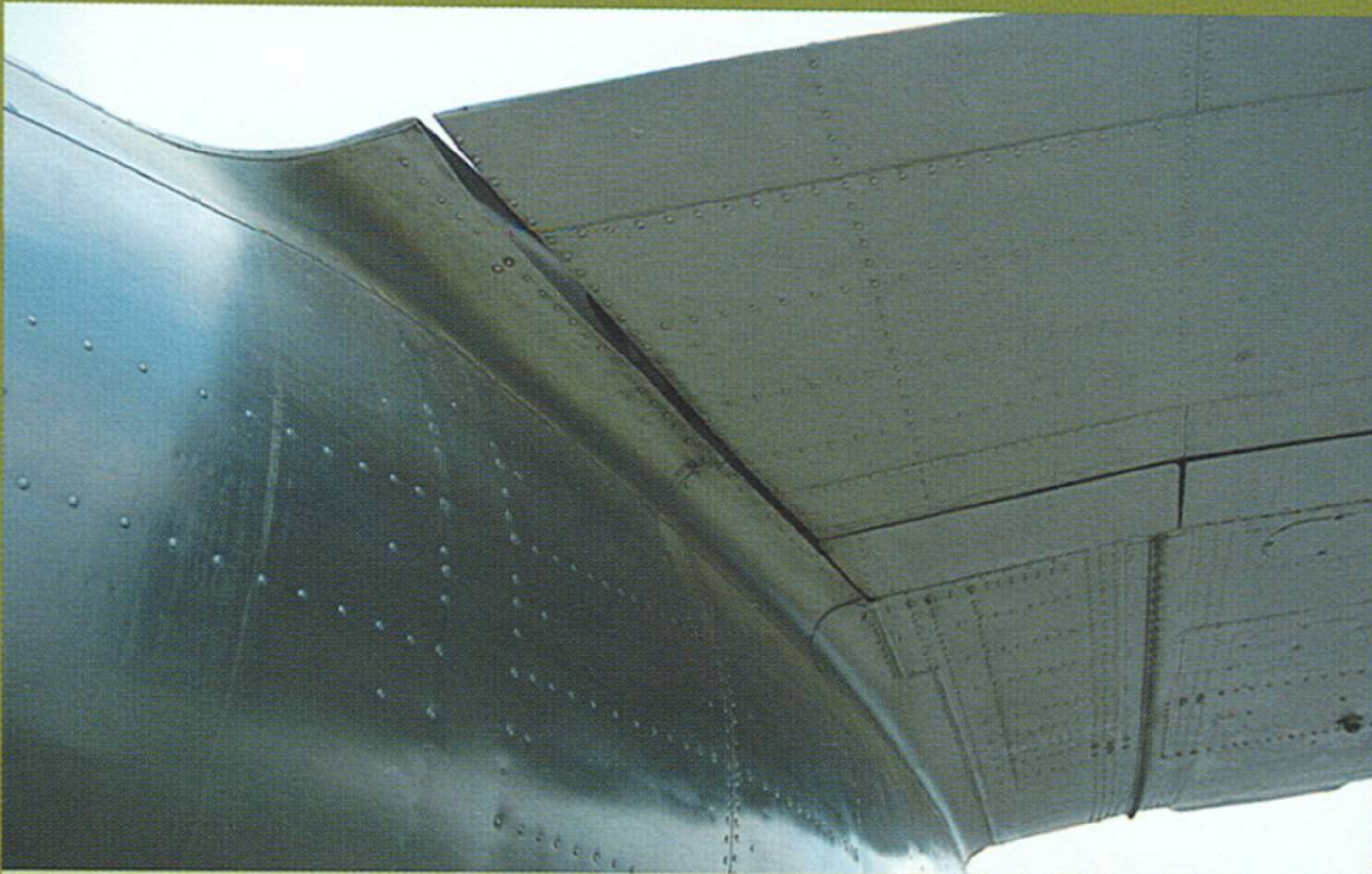
The underside of the stabilisers
(Photo David Doyle)



Detail of oil cooler air intake on the leading edge of the wing.
(Photo David Doyle)



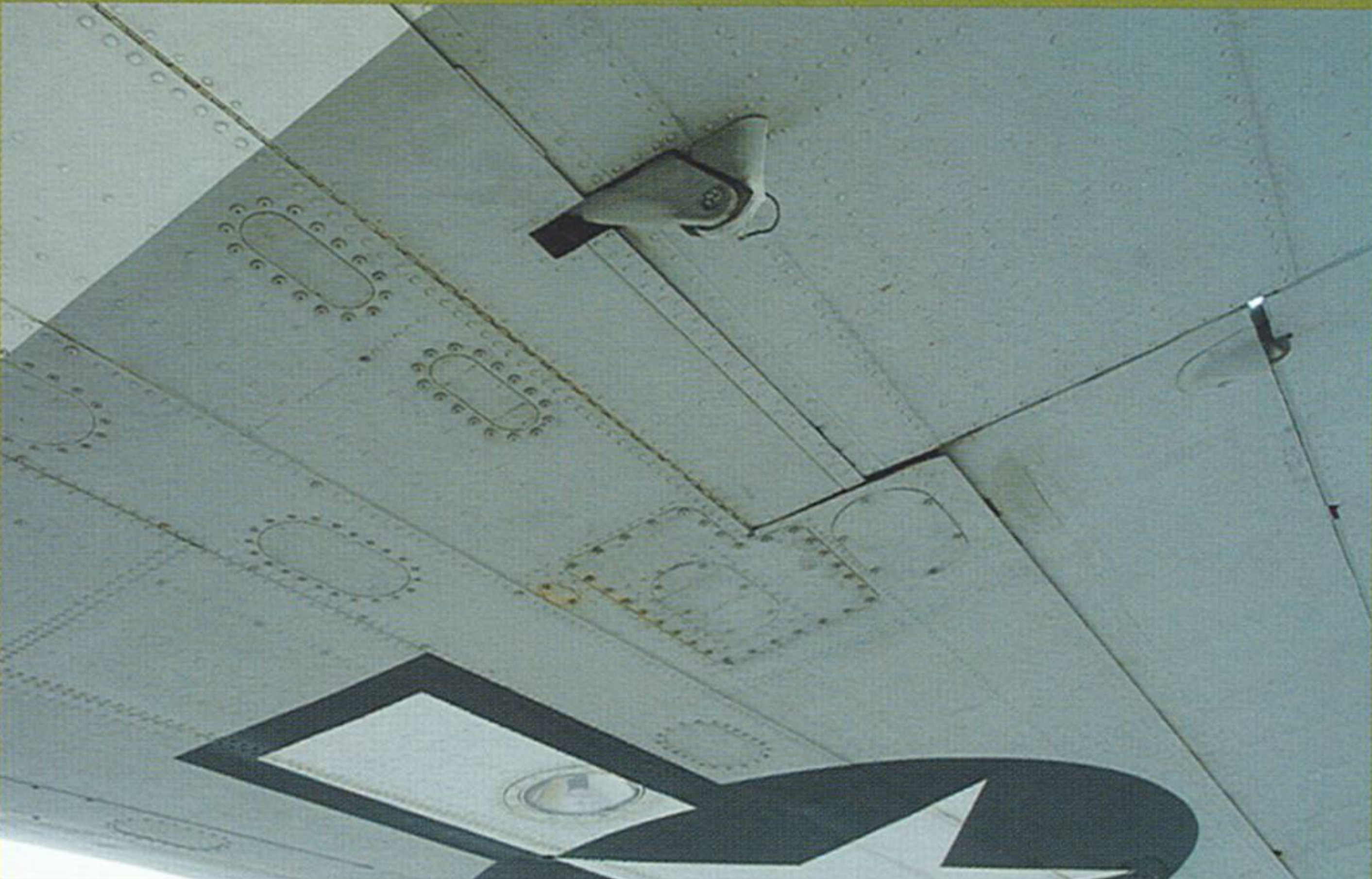
The outer face of the stabiliser. (Photo David Doyle)



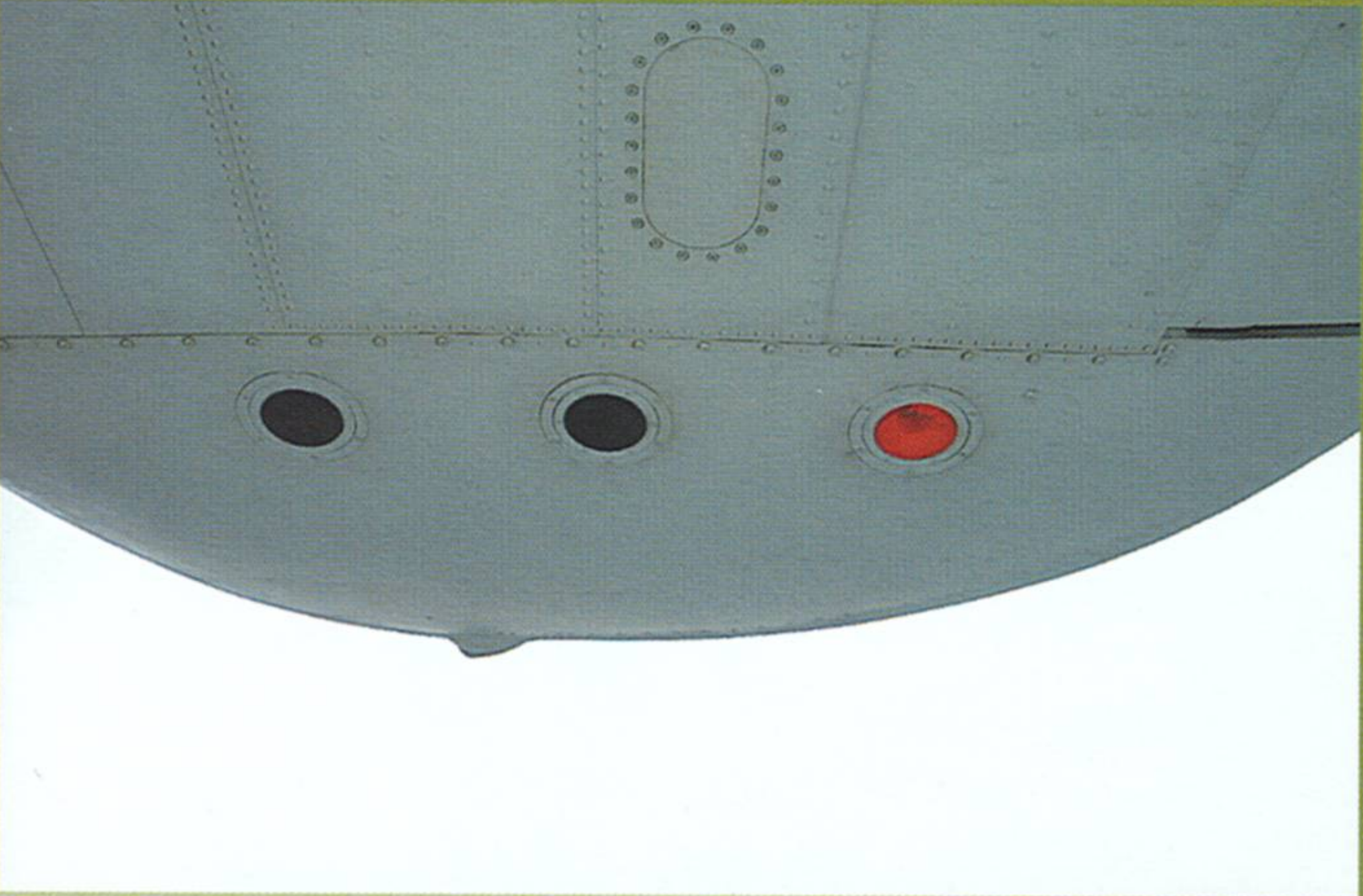
The underside of the wing and engine nacelle from the rear... (Photo David Doyle)



...and viewed from the front. (Photo David Doyle)



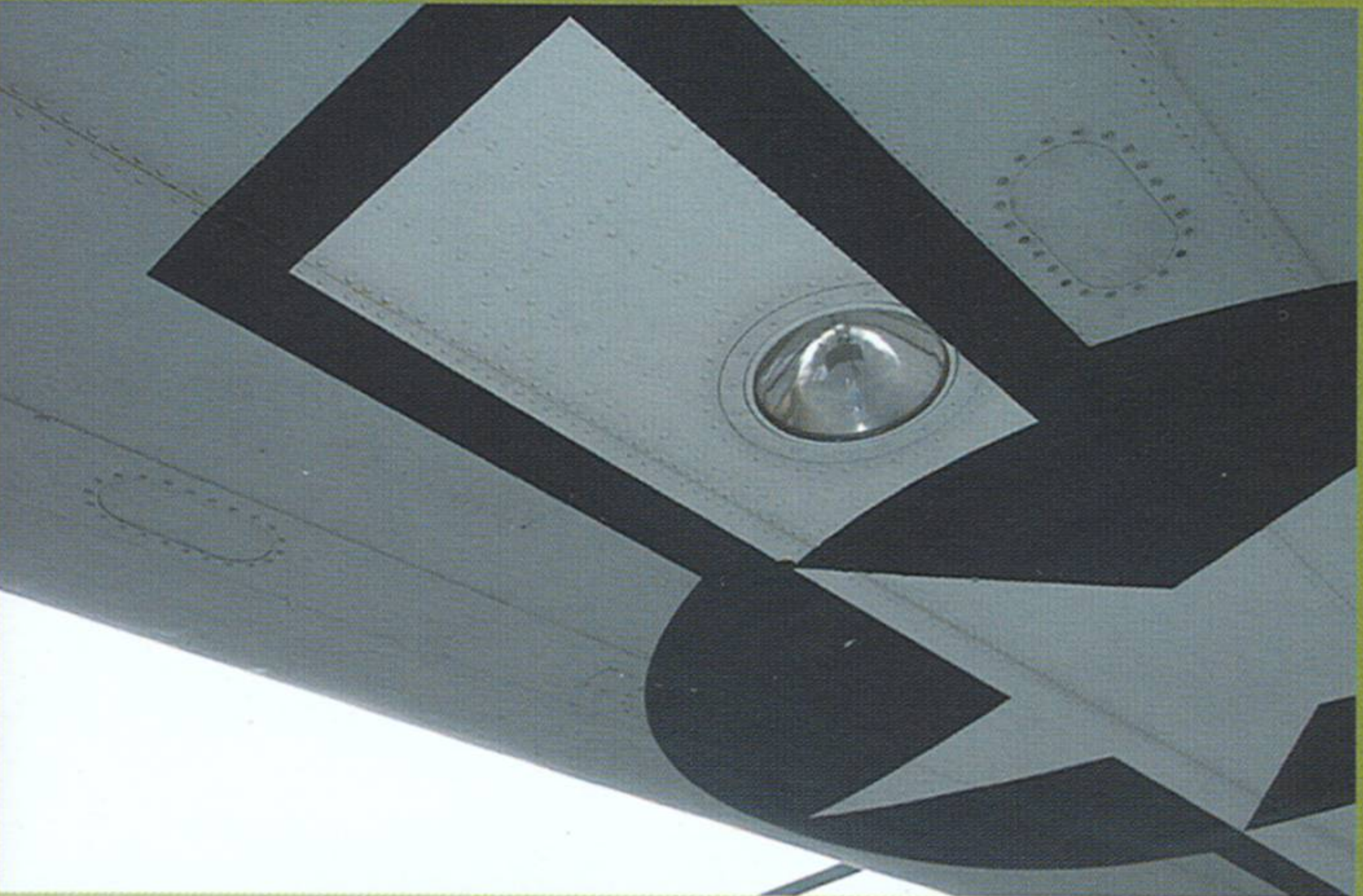
The actuator for the flap protrudes slightly beyond the surface of the wing. (Photo David Doyle)



Three identification lights were mounted beneath the right wing tip from the B-25C onward. (Photo David Doyle)



An overall view of the tail. (Photo David Doyle)



Mounted in the bottom of the right wing is a landing light. (Photo David Doyle)



The forward crew access ladder, aft ladder is similar. (Photo David Doyle)

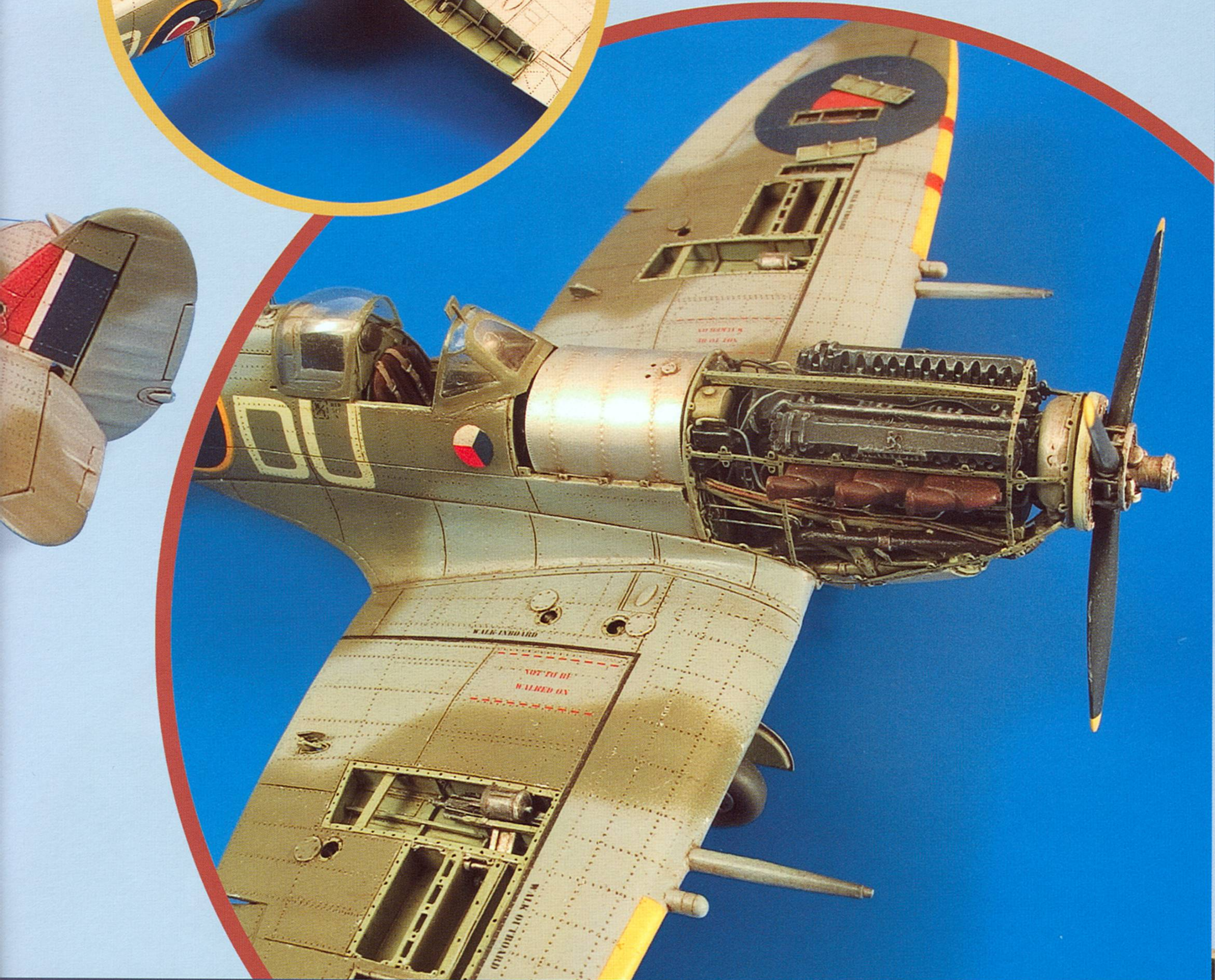


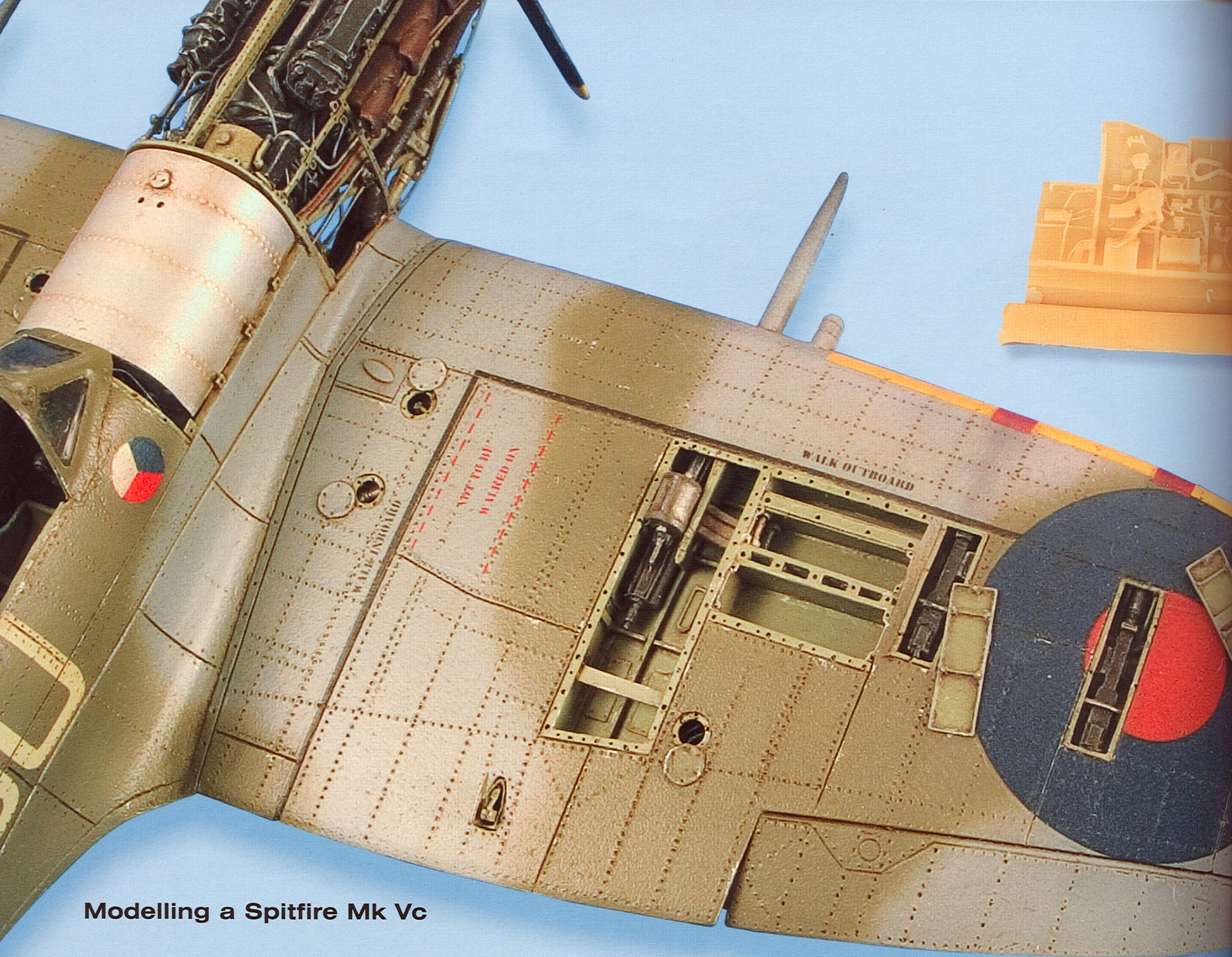
Zdenek Sebesta's
Supermarine
Spitfire

*Tamiya's 1/72 scale Spitfire Mk Vb
converted into a Mk Vc*

Kits of the Supermarine Spitfire have been produced by almost every big modelling company and through the years, literally dozens of variants of this famous aeroplane have been produced. In my opinion, amongst the best in 1/72 scale are the kits from Tamiya. Two versions have been produced so far by this company, the first was the Mk I, and the second, which I used for my model, was the Mk Vb. I decided to convert the Mk Vb in to the later Mk Vc.

There are several significant differences between these two essentially similar Marks, especially concerning the redesigned, universal wing, which allowed up to four 20mm cannon to be carried.

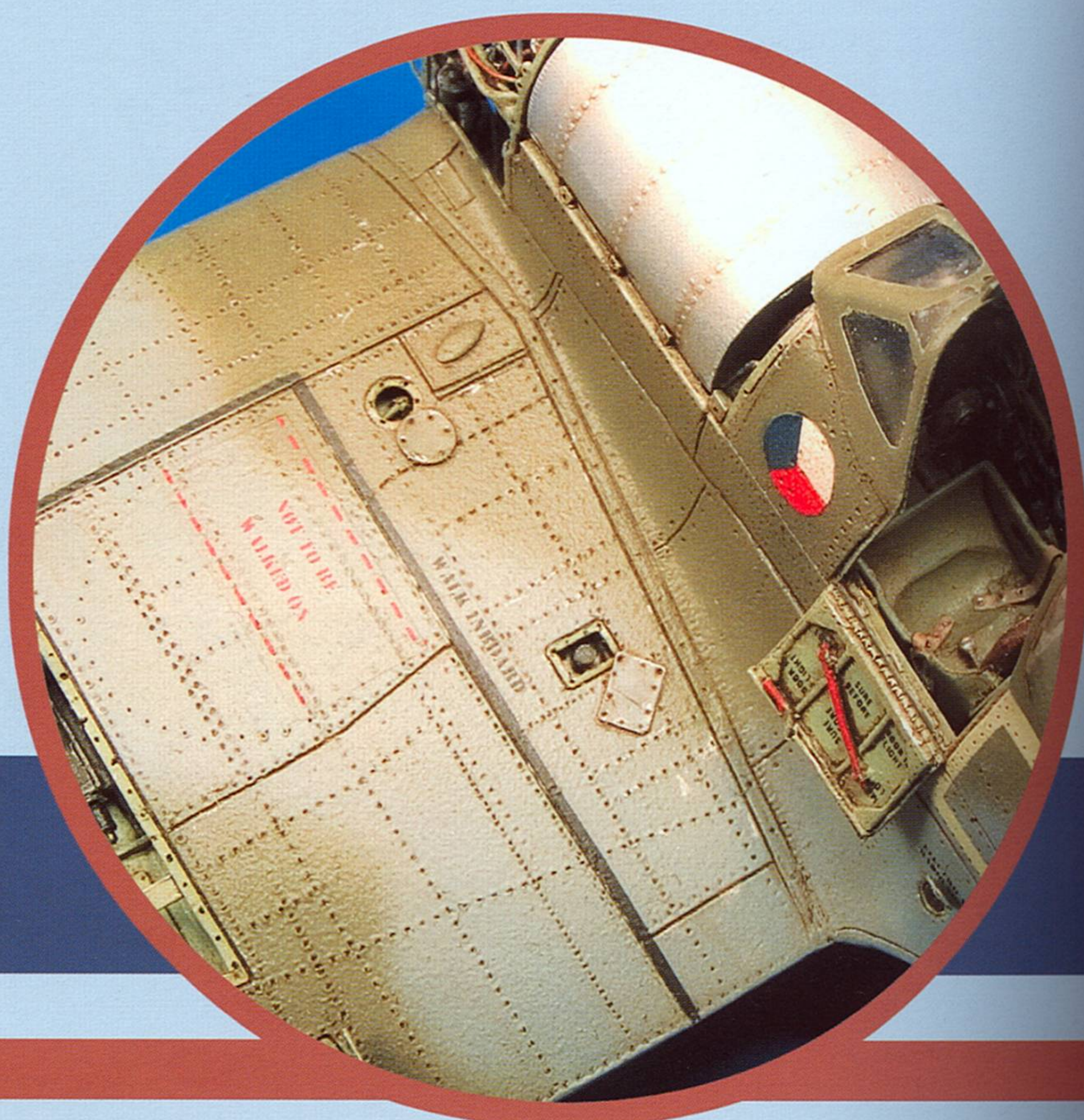


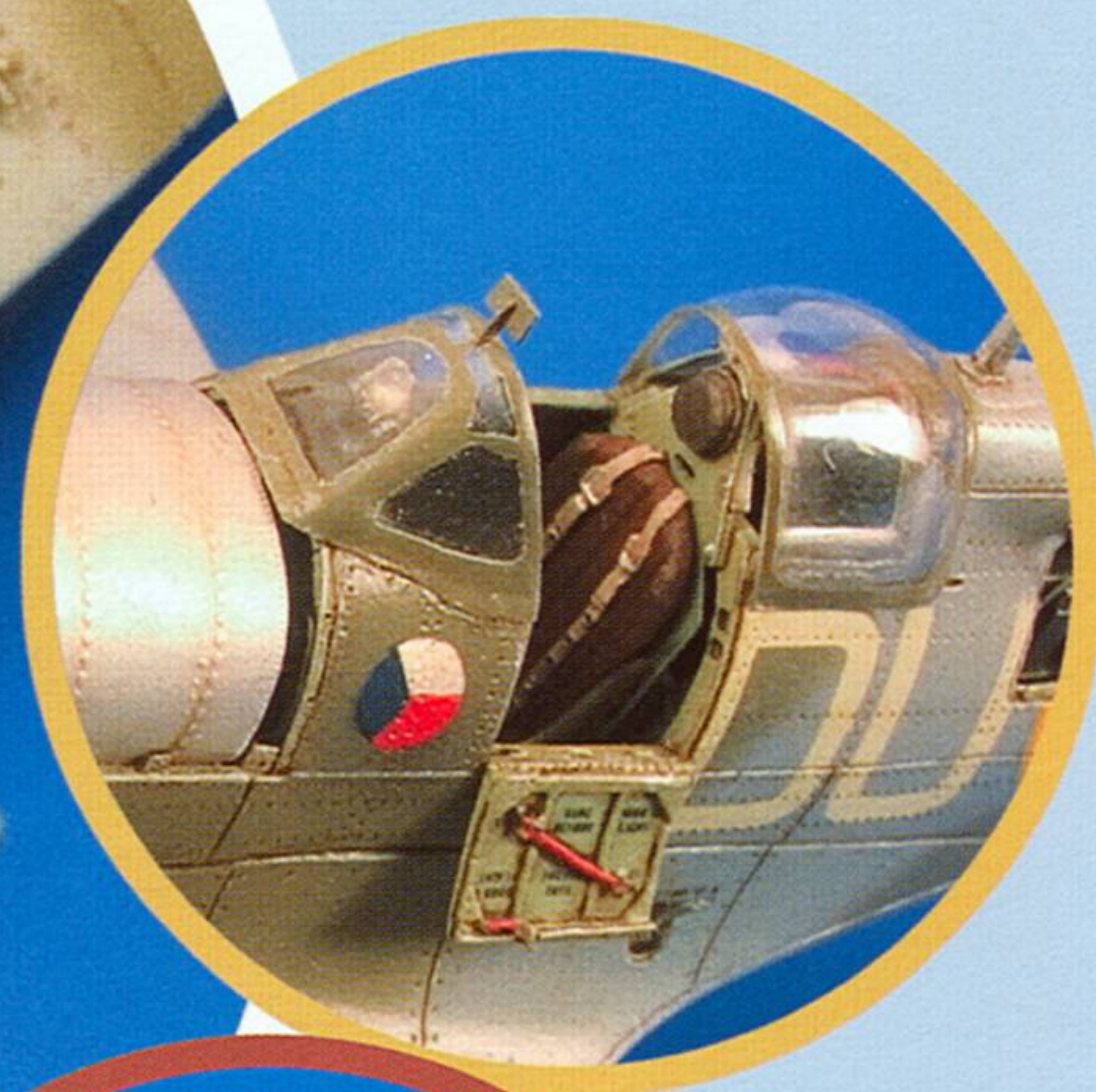
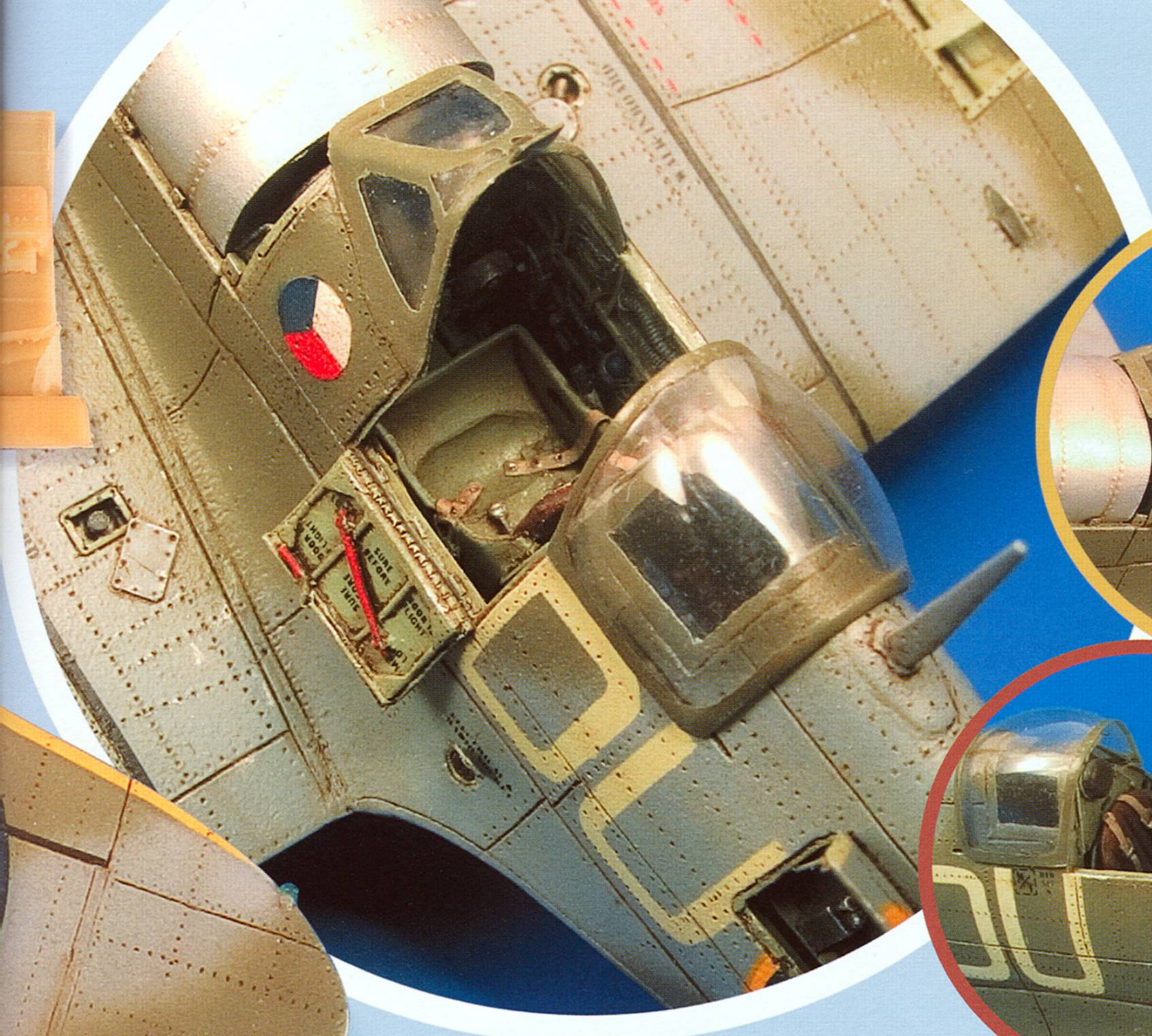


Modelling a Spitfire Mk Vc

Work began on the exterior surface of the model. I completely rescribed the new panel lines on the upper and under surfaces of the wings, using a variety of scale plans as reference. I also opened up many of the armament bays and inspection covers on the wing and fuselage. Rows of flush rivets were also added. To achieve this I used various cog wheels taken from old watches to emboss the surfaces of the wings and fuselage.

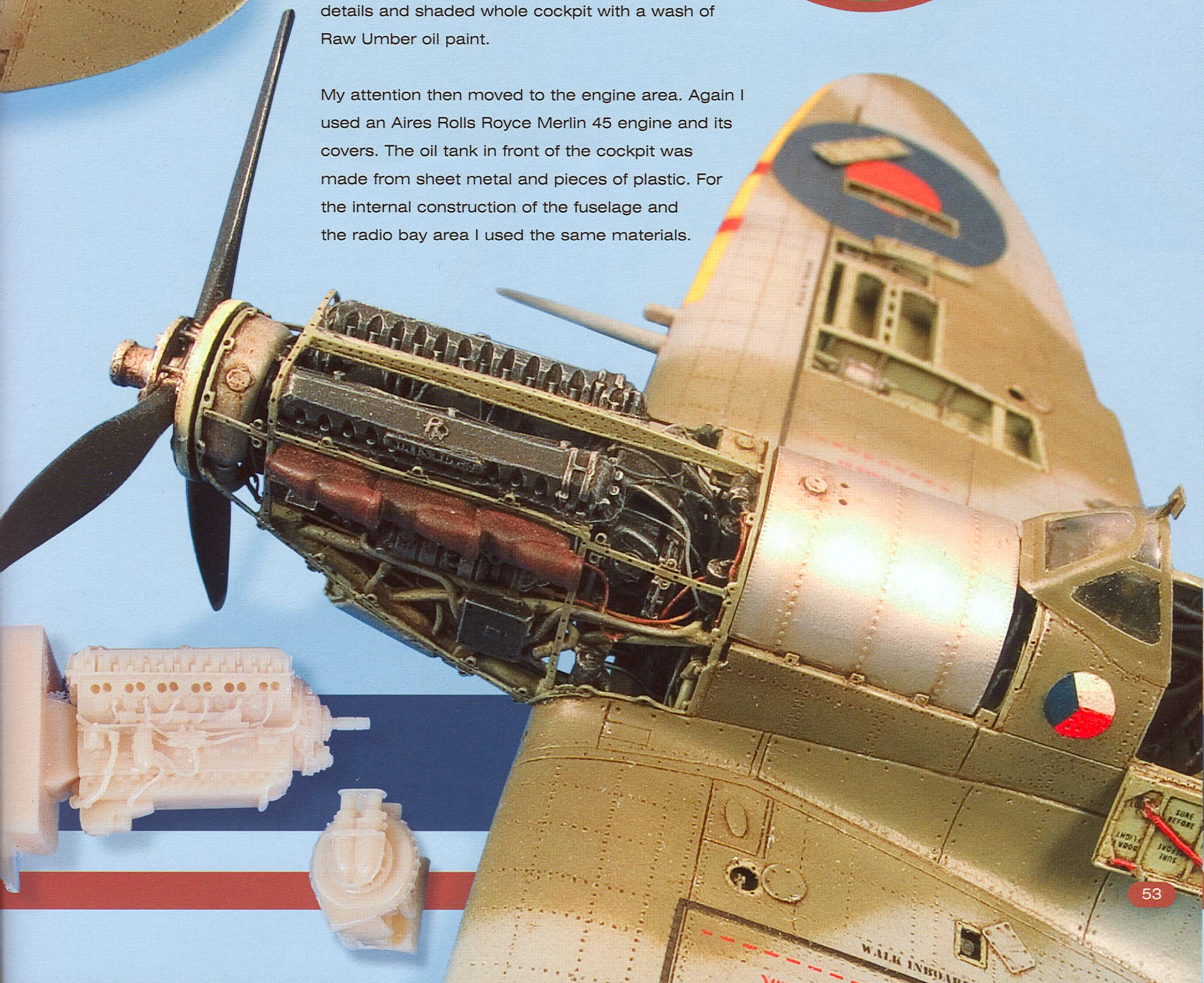
I then started to work on the cockpit. I used an Aires cockpit set as a base. This set is designed for the Spitfire Mk I, but with some minor changes can be used for the Mk.V layout. The cockpit was airbrushed with AeroMaster RAF Interior Green after which I hand painted the

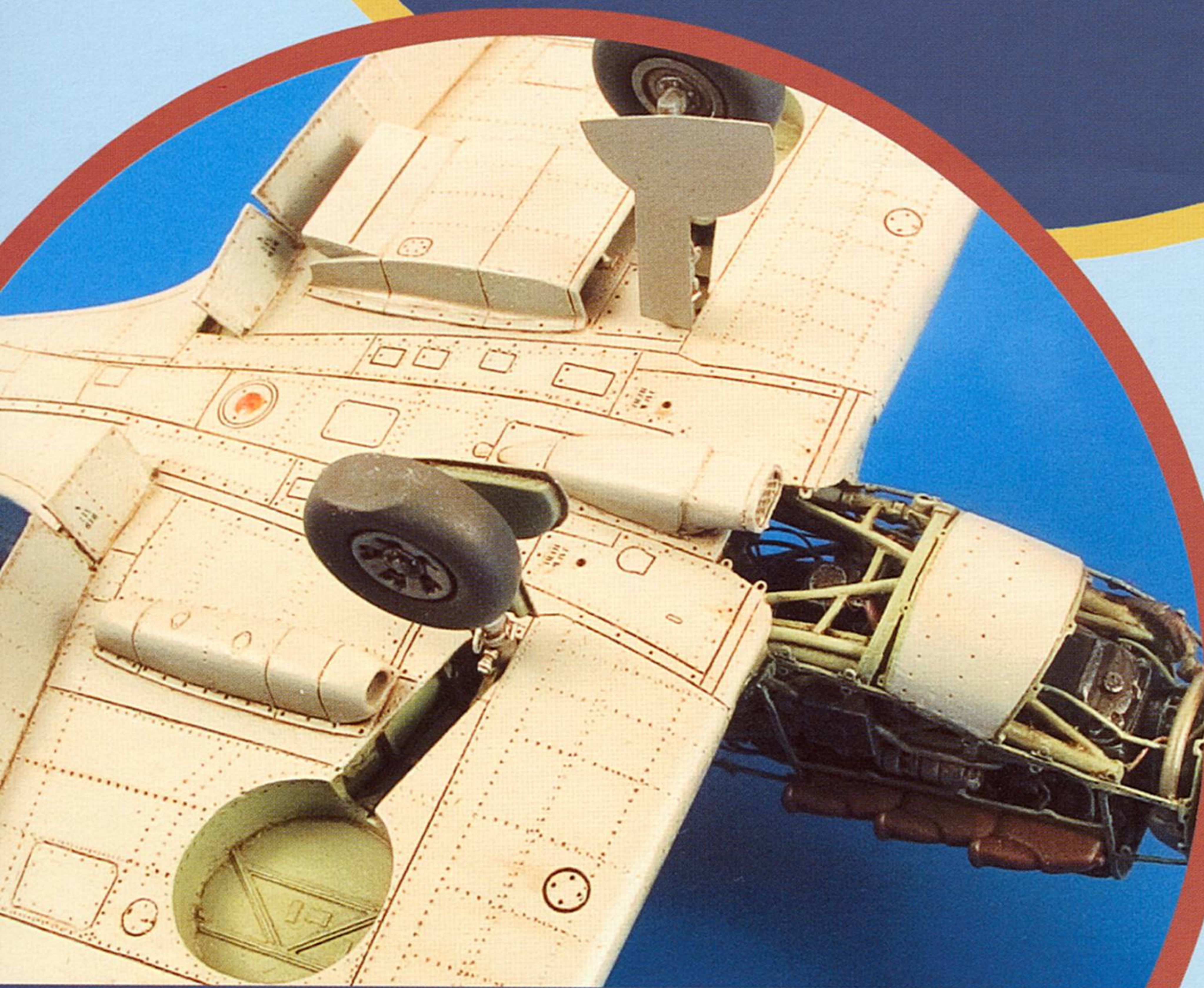




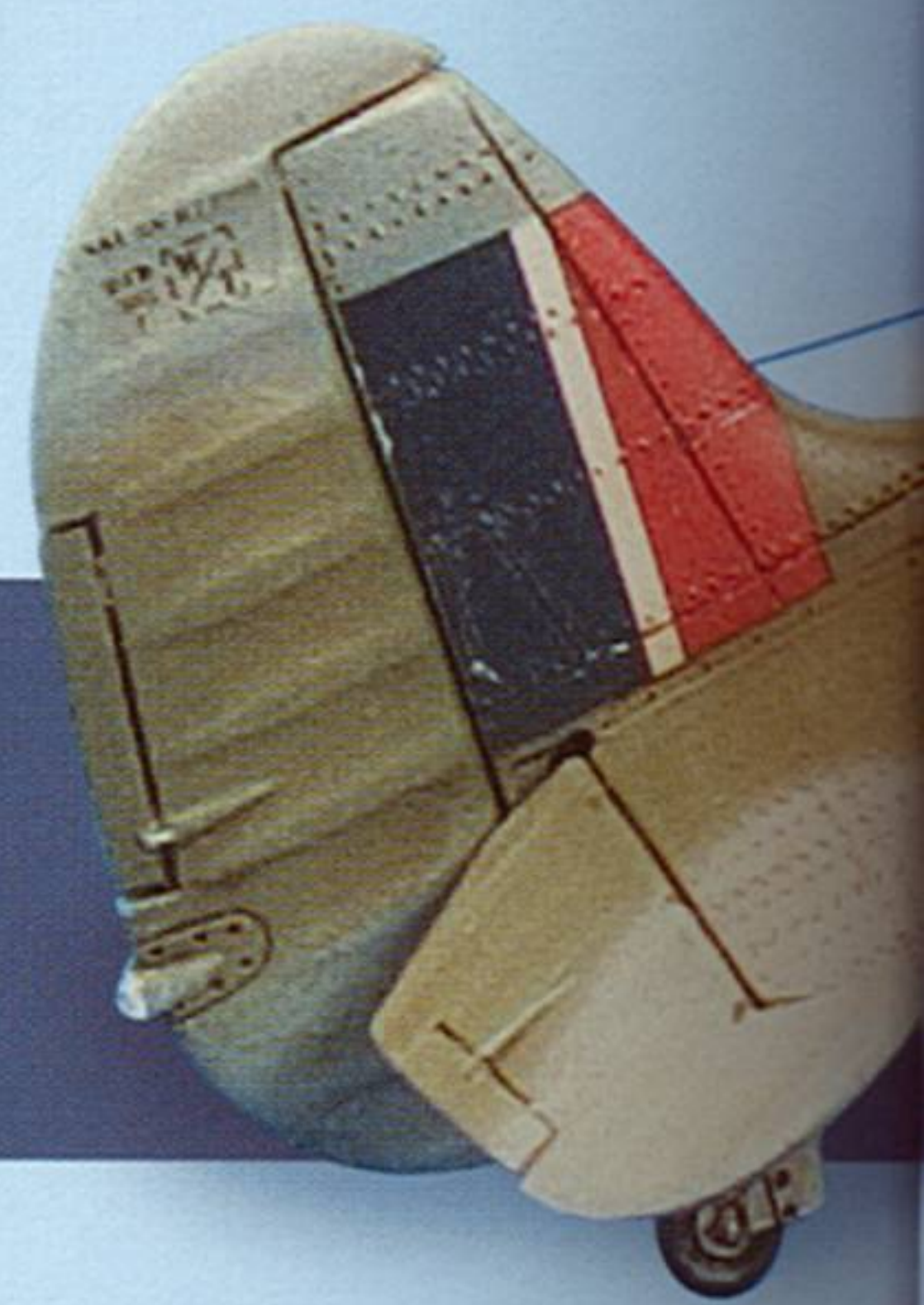
details and shaded whole cockpit with a wash of Raw Umber oil paint.

My attention then moved to the engine area. Again I used an Aires Rolls Royce Merlin 45 engine and its covers. The oil tank in front of the cockpit was made from sheet metal and pieces of plastic. For the internal construction of the fuselage and the radio bay area I used the same materials.





After painting and weathering the different sub-assemblies, my attention moved back to the construction of the wings. The details are mostly scratchbuilt items, for which I used sheet plastic. The ammunition boxes were fixed into place with the Hispano cannon and Browning machine guns from the Aires set. The flaps are photo-etched items from Part. Again, all these items were painted and weathered after their completion.



Painting and decalling

After finishing the major assembly of the model, all the pre-painted details were masked-off ready for painting the exterior. I used Eduard Express mask foil for masking out the canopy. First the under surfaces were sprayed with Gunze Sangyo Medium Sea Grey. When this was dry the under surfaces were masked and the upper surfaces were airbrushed with Ocean Gray and then Dark Green. The propeller spinner and rear fuselage band were painted Tamiya Sky and the whole model was then misted with gloss varnish ready for the decals to be applied.

I chose the markings for No 312 (Czech) Squadron, which was one of several units flying within the RAF manned by Free Czechoslovak personnel. This Spitfire was flown by 312 Sqn during 1943 from bases in mainland United Kingdom.

The markings I used were from Eagle Strike, with code letters from Tally ho and stencils from TechMod. After thoroughly drying, all the decals were fixed with another coat of gloss varnish and shading was applied with Raw Umber oil paint, and exhaust and cordite stains imitated by extensive use of pastels. Scratches and chipped paint were represented by Testor's Aluminium, carefully applied with pointed brush. Finally I sprayed the whole model with AeroMaster's Semi Gloss Varnish, before

attaching any remaining fine details.

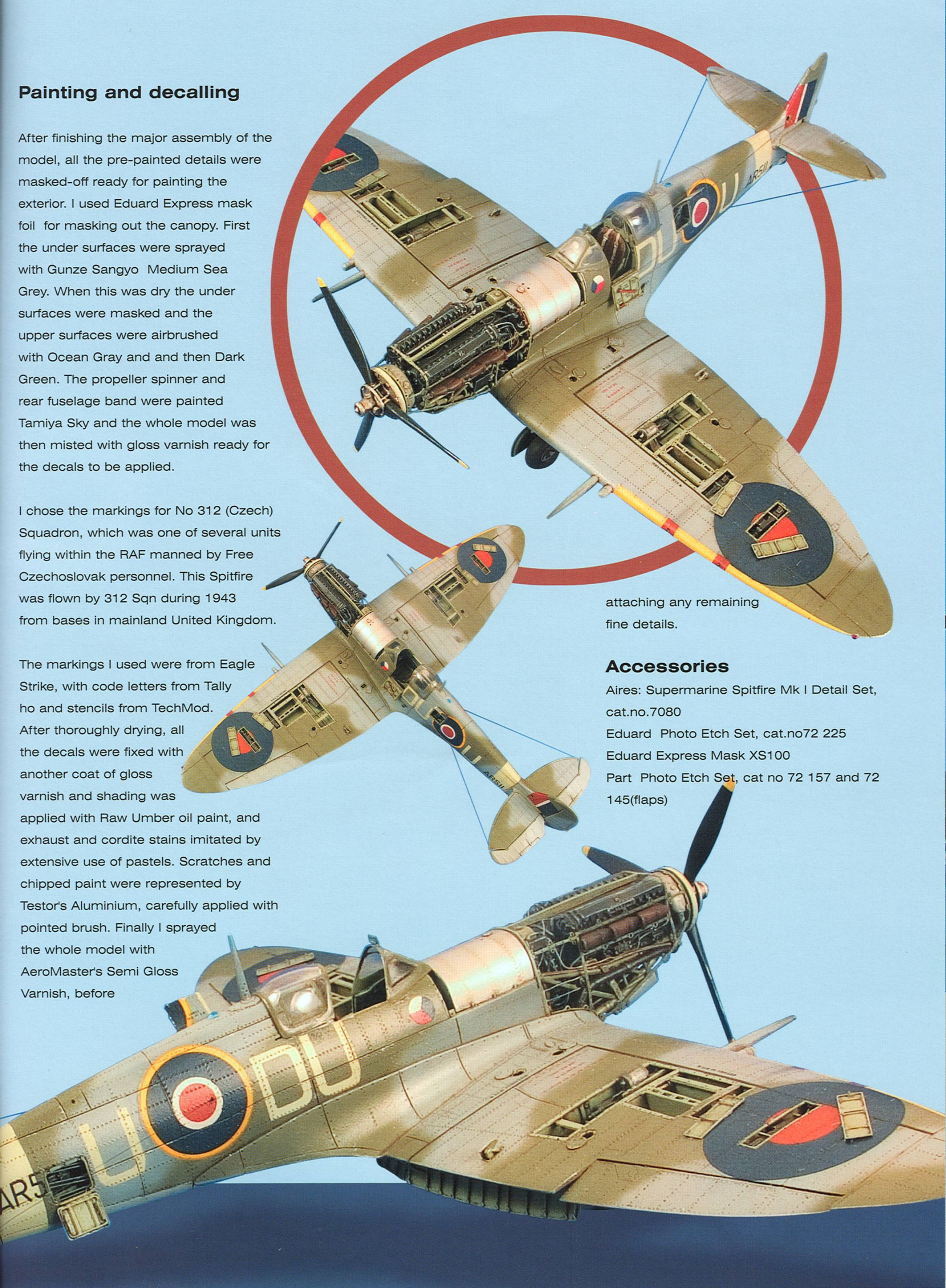
Accessories

Aires: Supermarine Spitfire Mk I Detail Set, cat.no.7080

Eduard Photo Etch Set, cat.no72 225

Eduard Express Mask XS100

Part Photo Etch Set, cat no 72 157 and 72 145(flaps)





Marine Workhorse CH-46 Sea Knight

The arrival of the long-awaited kit of the CH-46 in the Quarter Scale was a real highlight for the modelling community and not only those hooked on 'whirlybirds'. There have been kits of this important helicopter around for a long time, but they were all to 1/72 scale, with Fujimi possibly offering the best in the whole series.

The CH-46 Sea Knight is a seriously big machine, especially noticeable in 1/48 scale and I could not wait to get my hands on it! When I did though, my enthusiasm cooled down somewhat. The level of detail both inside and outside is a little disappointing for a kit in this scale and unfortunately this affects some of the most critical

places such as the doors and the areas visible inside of the cabin, especially if you choose to display the doors open. The winch and the area in the cockpit where the pedals are situated also suffers from a lack of detailing. Similarly, the rotor heads could do with some extra detailing and last, but definitely not least, the entire exterior surface of the model does not show one single rivet, when there are thousands and thousands on the real thing!

There are only a few engraved panel lines, some of which are far too deep and randomly scattered around the entire surface. However, the kit is a good base for a really nice replica of one of the great helicopters of our time and one which has already made its mark in the history books. It will however require a solid effort from the builder and that makes it exactly my kind of kit - where there is room for the modeller to



Albert Tureczek
refines and
super details
the Academy kit
in 1:48th Scale



CH-46 Sea Knight



unfold his creativity. Academy's kit provides you with just the right base to build from and at a very reasonable price, which makes it an interesting kit in my book, not unlike many of the new kits, which are simply too perfect and too expensive.

Historical background

In 1957 the US Army issued a contract for a medium lift transport helicopter. One of the submissions was the YHC-1C produced by the Vertol Aircraft Corporation. The machine, which made its maiden flight in April 1958, featured a tandem rotor design.

However, the Army found the YHC-1A too heavy for a battlefield helicopter and too light for a transport ship and rejected Vertol's proposition, in favour of the CH-47 Chinook.

The YHC-1A however had caught the interest of the US Marine Corps and a modified prototype made its first flight on 27 August 1959, following which an order for 600 helicopters was placed straight away. In the meanwhile Boeing had taken over the Vertol Company and the new helicopter was designated Boeing Vertol CH-46 Sea Knight and a legend was born.

The US Navy also ordered the type and in 1965 the Japanese Kawasaki Corporation was awarded a manufacturing license contract under the designation KV-107. Other export customers included Burma, Saudi Arabia, Thailand, Japan, Sweden and Canada, which designated their Version CH-113 Labrador and used them in the SAR role.

Over the past 40 years the machine has proved its worth from the jungle battlefields of Indochina, over the snow covered Norwegian fjords, to the desert battlefields of the recent Gulf Wars. Even a



civilian version was built and flew for New York Air and Pan Am in the 1960s.

Generally the basic CH-46 is operated in an unarmed configuration, with the exception of the Swedish version, designated HKP-4, which is also used as sub-hunter and can be armed with torpedoes and depth charges. Age is now beginning to take its toll on the CH-46 and before long they will have disappeared from active service - but not without having underlined its status in the history of flight as one of the truly great helicopters.

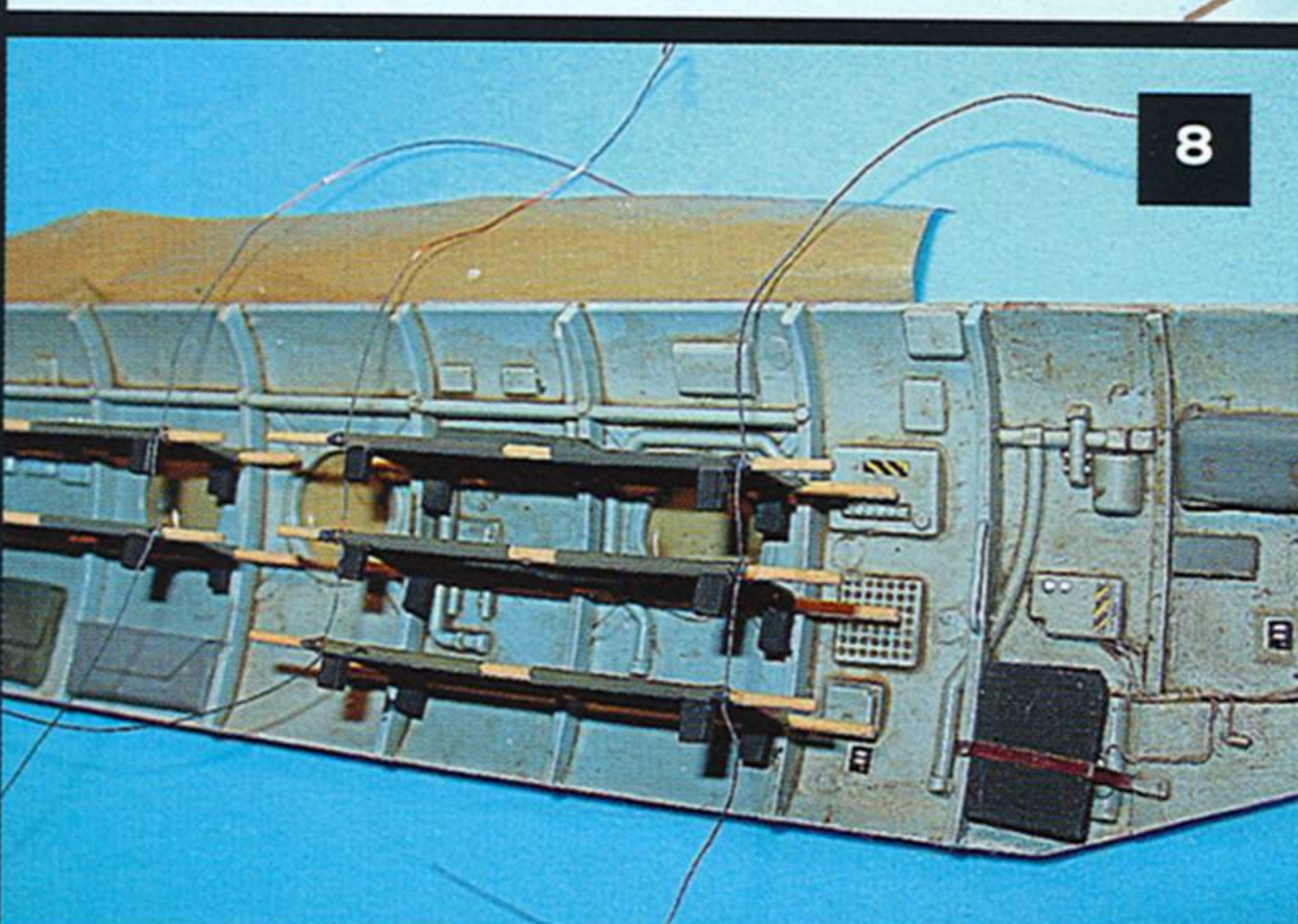
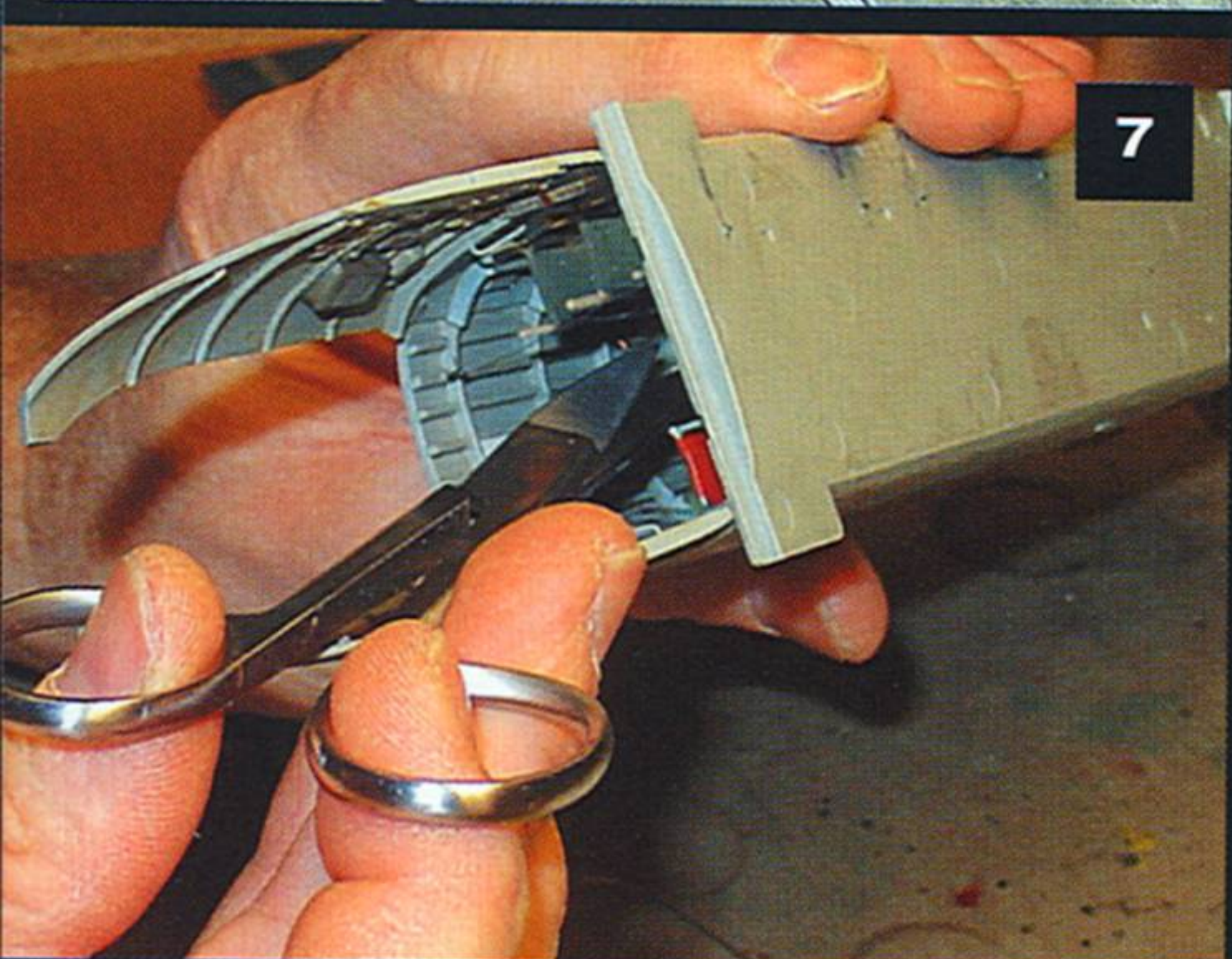
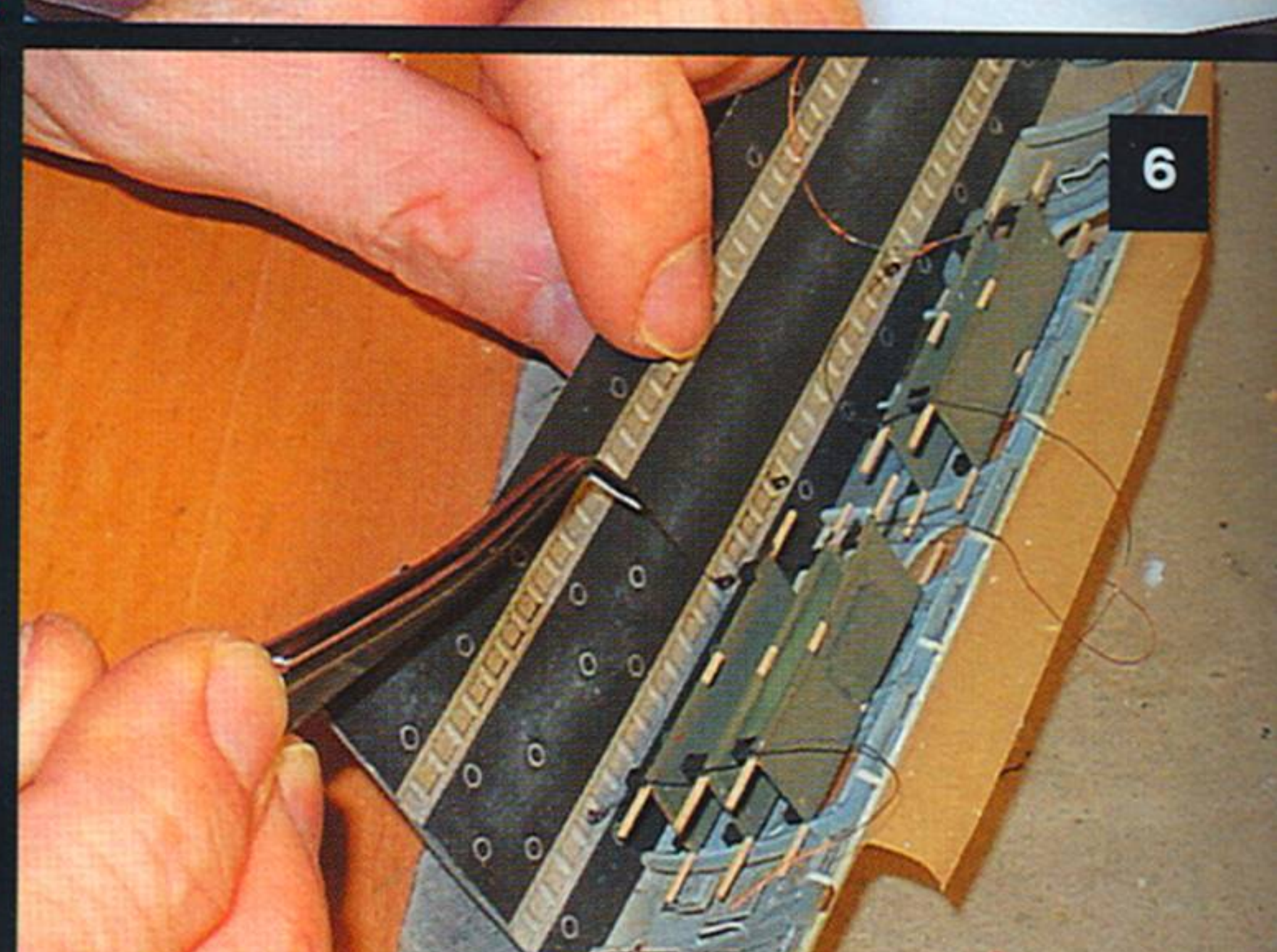
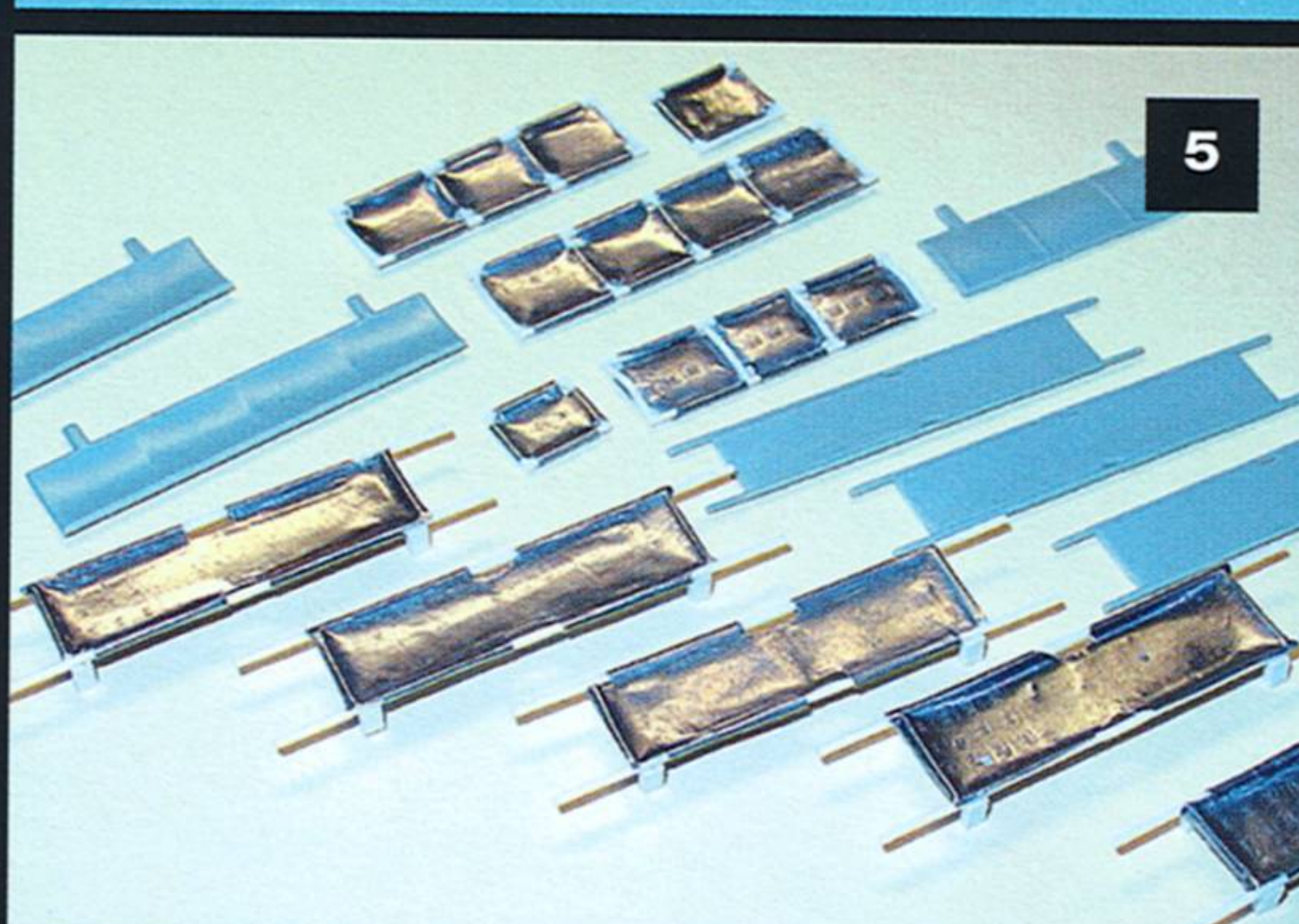
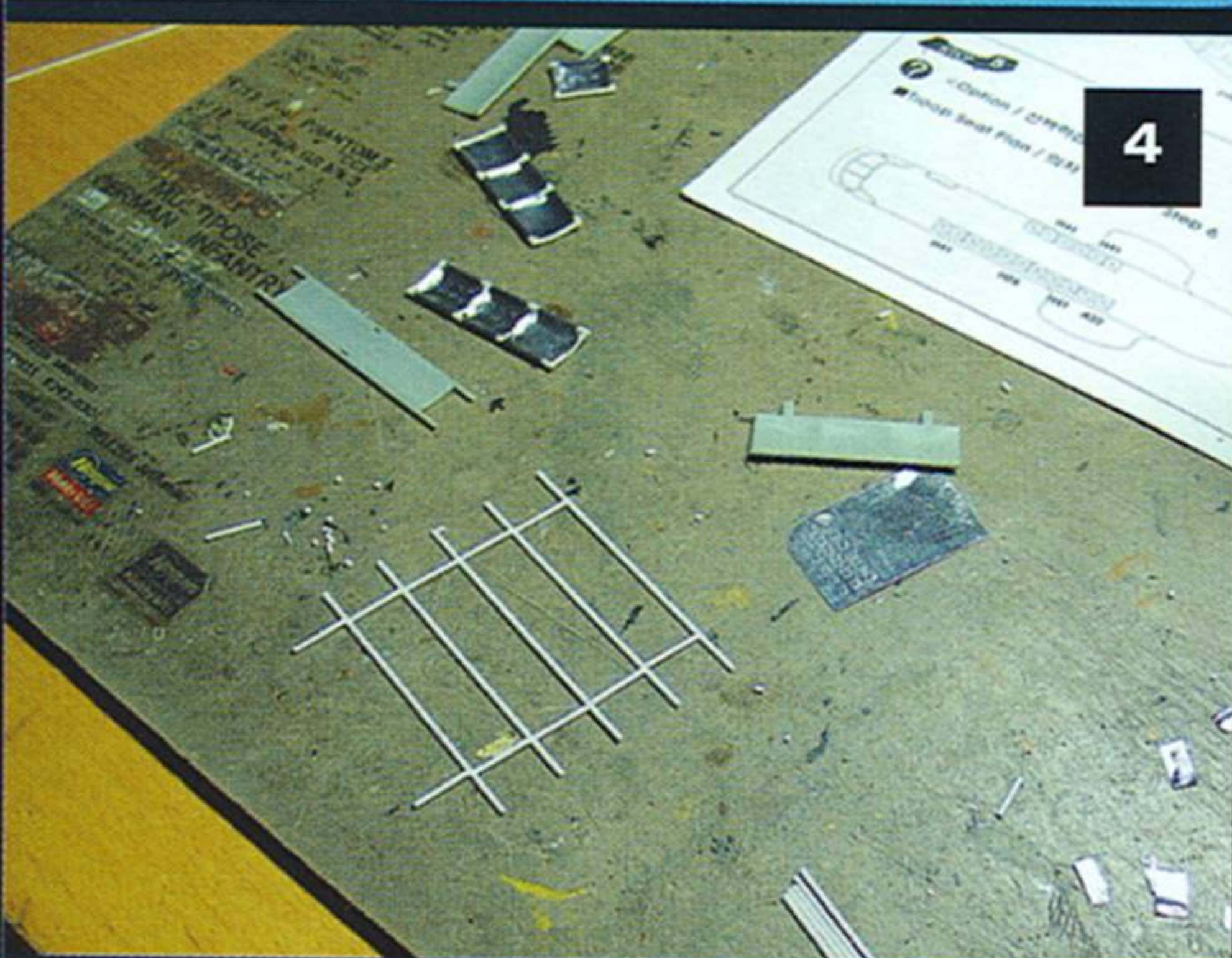
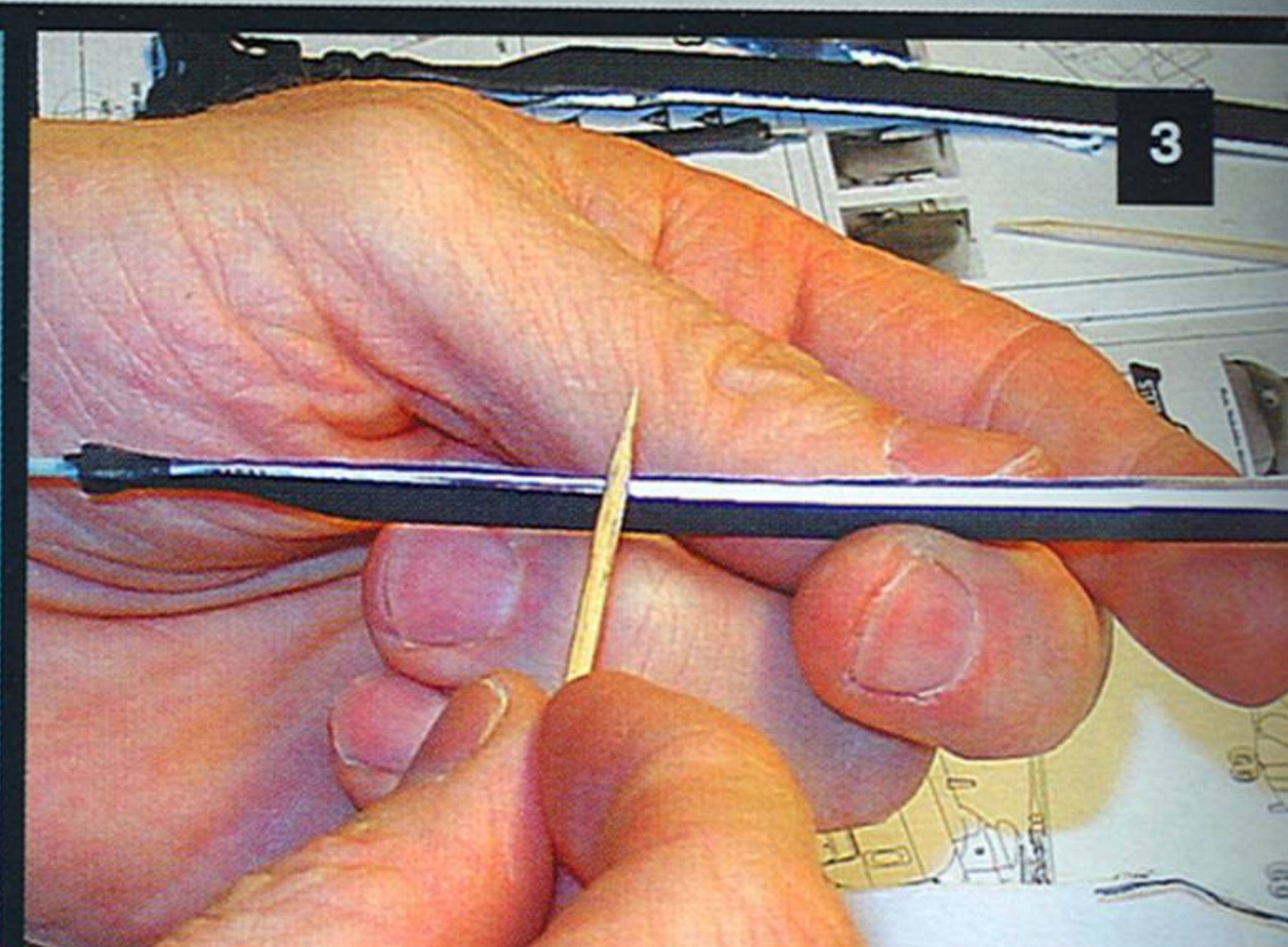
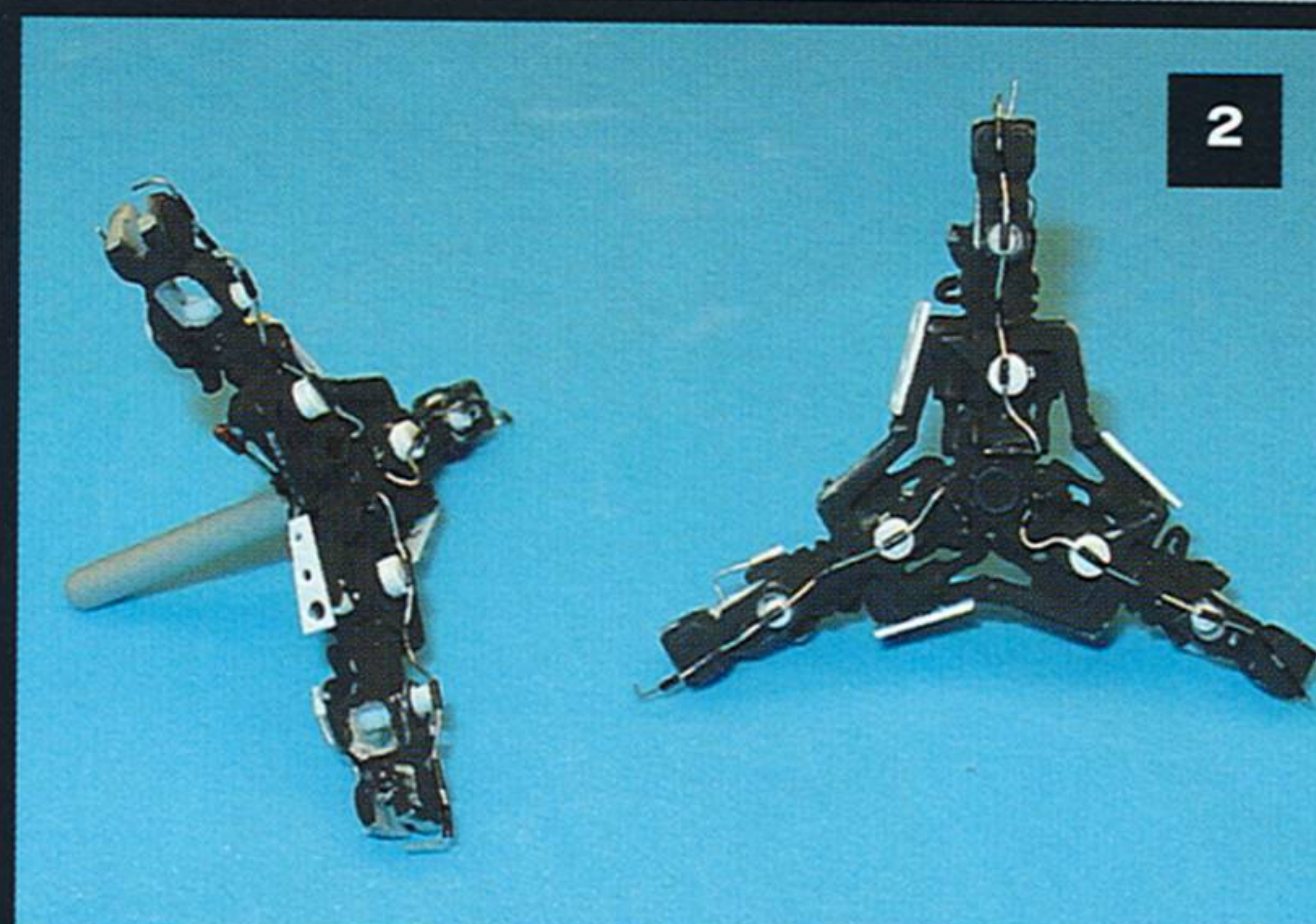
The kit

The kit comes in a box that is big enough to act as a mobile workshop and consists of 197 grey plastic parts accompanied by a very detailed instruction booklet. The most impressive thing however is the huge decal sheet offering markings for three different versions. There is so much stencil data provided that I very much doubt that many of the built-up models we may see in the future will feature all of them. Let's get to work

The Academy kit is not a difficult model to

make even for a less experienced modeller. The instructions suggest you start with the rotor head assembly, and why not? Usually my approach to a fairly easy kit like this is to cut all parts clear of their sprues, clean them up and decide which parts to keep, which parts to rework and which parts to replace. At this stage I also made up my mind on which version to choose. I went for a grey US Marines machine in the Lo-Viz paint scheme. I wanted to depict a troopship, a real Marine Workhorse, which would reflect the wear and tear these helicopters are subjected to.

One good thing about this kit and a



relatively new approach to construction in terms of model building, is what I call the 'sandwich system' in which the cabin, made up from basically four sides - floor, ceiling and the two sidewalls - is actually built into the main airframe. Once assembled and painted I was able to fit the whole module into the two fuselage sides, with the windows sandwiched in between. **Fotos 6,7,8 & 13** Hardly any glue was necessary, preserving the fragile clear parts.

Rotors

The rotor heads and blades are acceptable and can fairly easily be placed in the stowed/down position, as so often seen on carriers. But there is a really good opportunity here to enhance the overall impression of the model quite significantly with some extra detailing. The rotor head of the real CH-46 is a complex item and there is a very good illustration of one in the instruction booklet. I added a whole lot of

extra detail, **Fotos 1 and 2** and fixed bare metal foil on the leading edges of the blades. **Foto 3** I did not use the circular plastic parts intended to hold the rotor blades in place on the finished model. I travel a lot with my models and liked the idea of being able to detach them as and when I needed to. As it happened, these circular plastic parts found another destination when I had to build the engine intake section!

Cabin interior

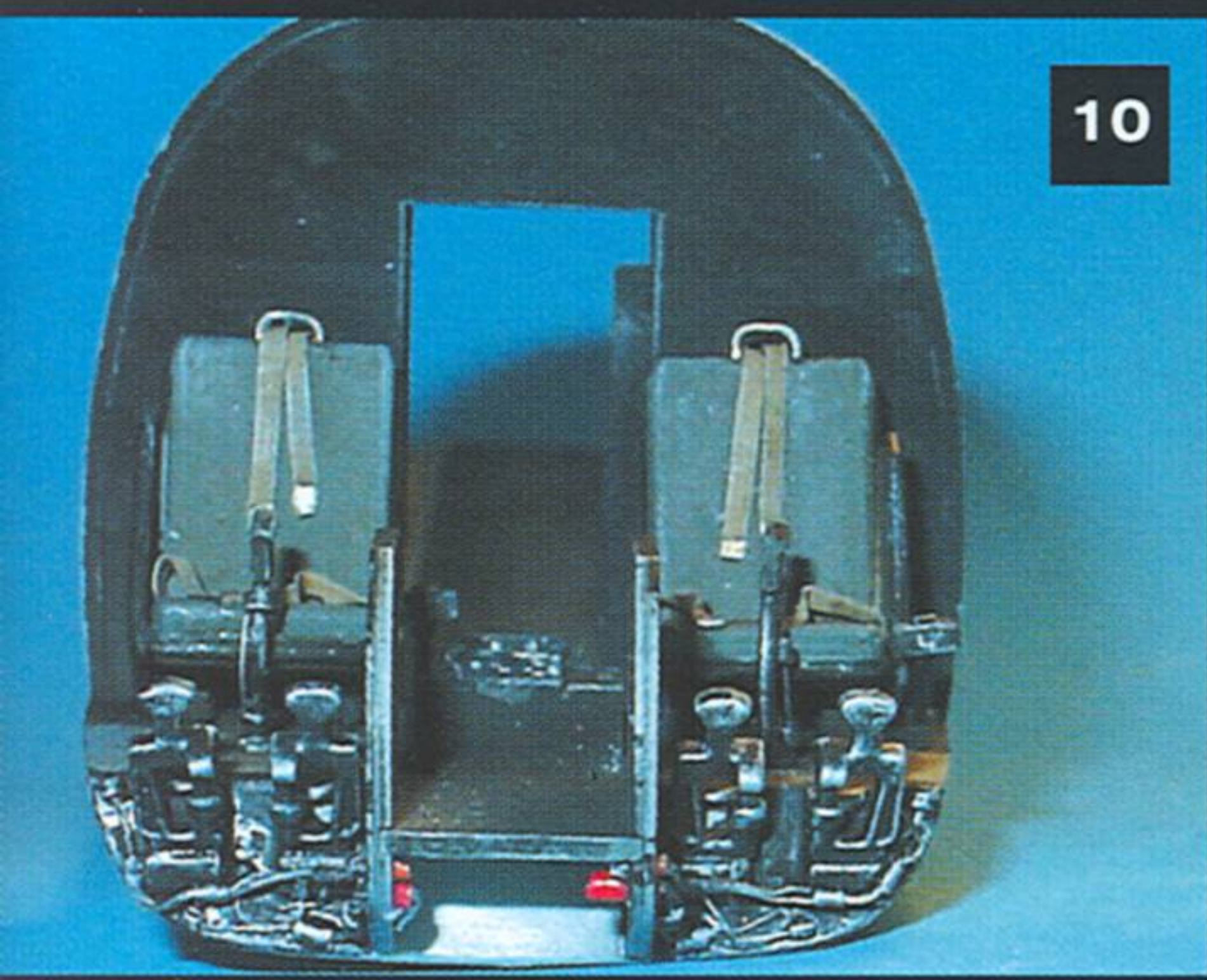
There is a choice of internal cabin fittings - bench seats or stretchers. I went for a combination of both. Some of the CH-46 used in the recent Gulf Wars were fitted with machine guns mounted by the doors and the kit also provides these. I personally did not think too much of them, mainly due to their significant lack of detailing. However, I can imagine that before long the aftermarket industry will produce relevant

update sets.

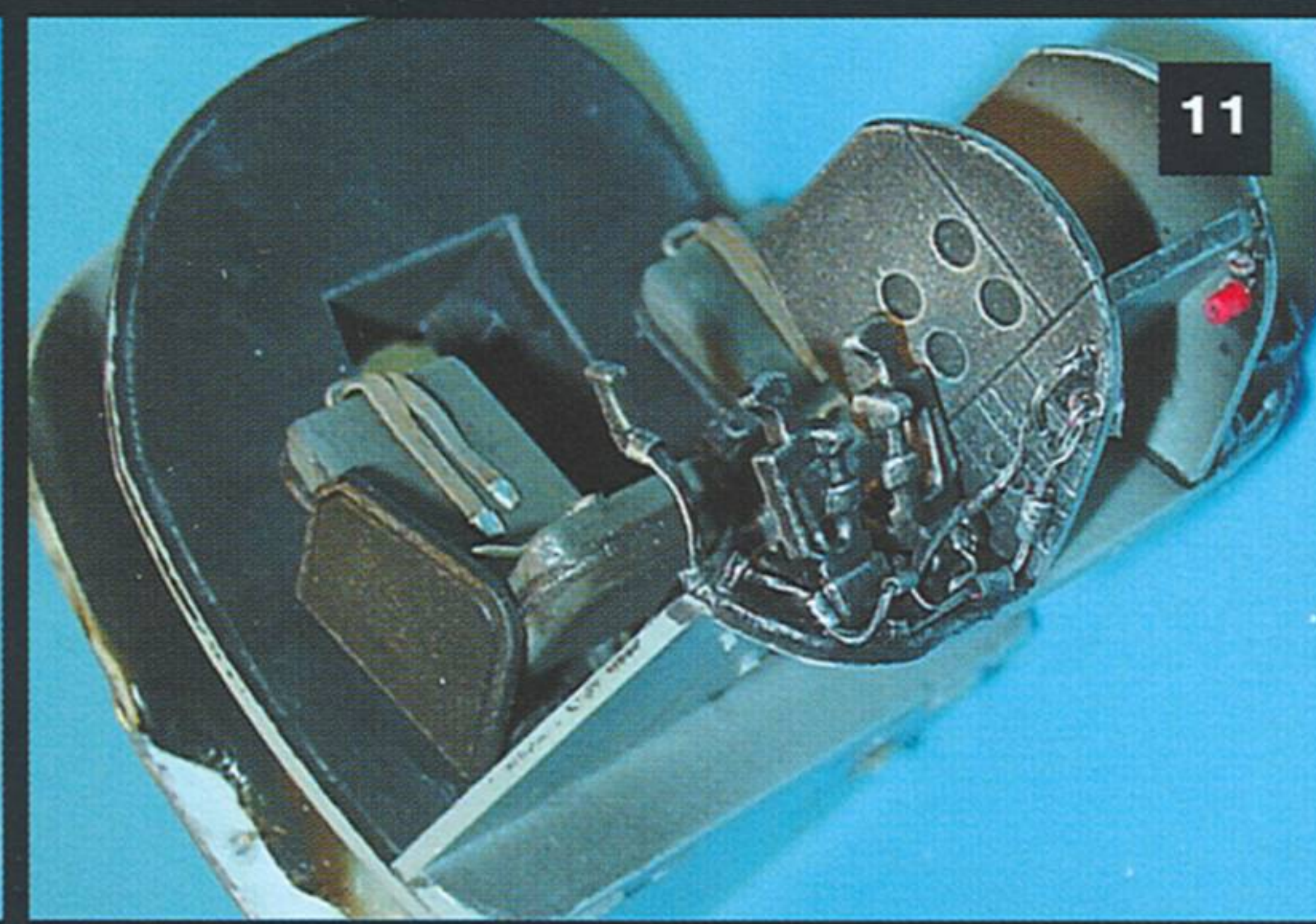
The kit supplied bench and stretcher parts are acceptable and can be used without problems. Even so, I scratchbuilt an entire new cabin interior! The seat benches in the Sea Knight are made up of an aluminium frame with red nylon fabric covers stretched over it. I made the frame from plastic rod and the covers from lead foil. **Fotos 4 and 5**

The Sea Knight has a huge rear ramp, which is intended for quick and easy troop deployment and retraction when needed. There are two more doors at the front of the airframe, the one on the starboard side being the biggest, allowing large parts of the interior to be seen with the naked eye. Of course the doors can always be fixed closed, but I wanted my model's doors to be open.

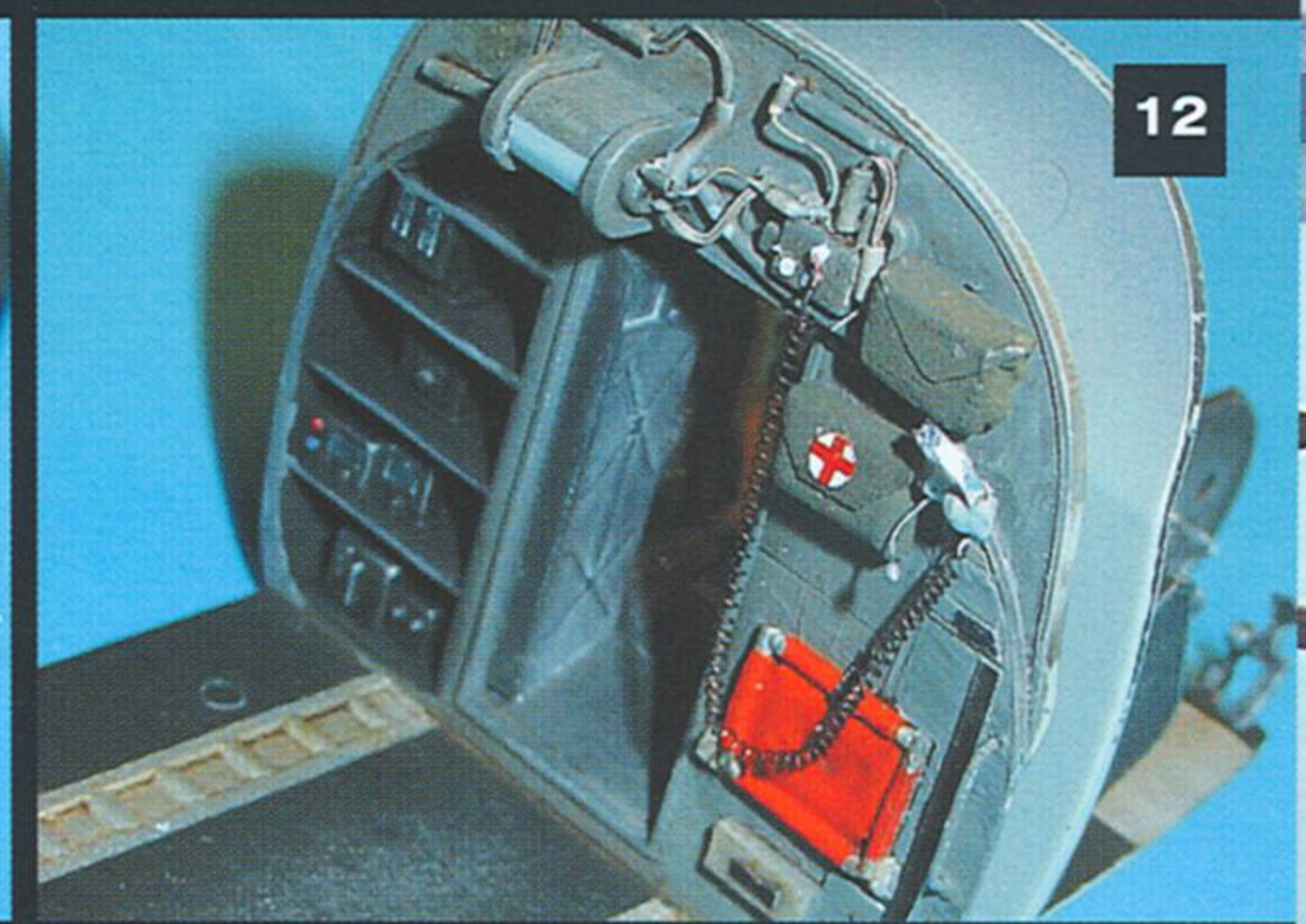
I added some personal gear, bags, first aid boxes, cargo netting, tie down spots both



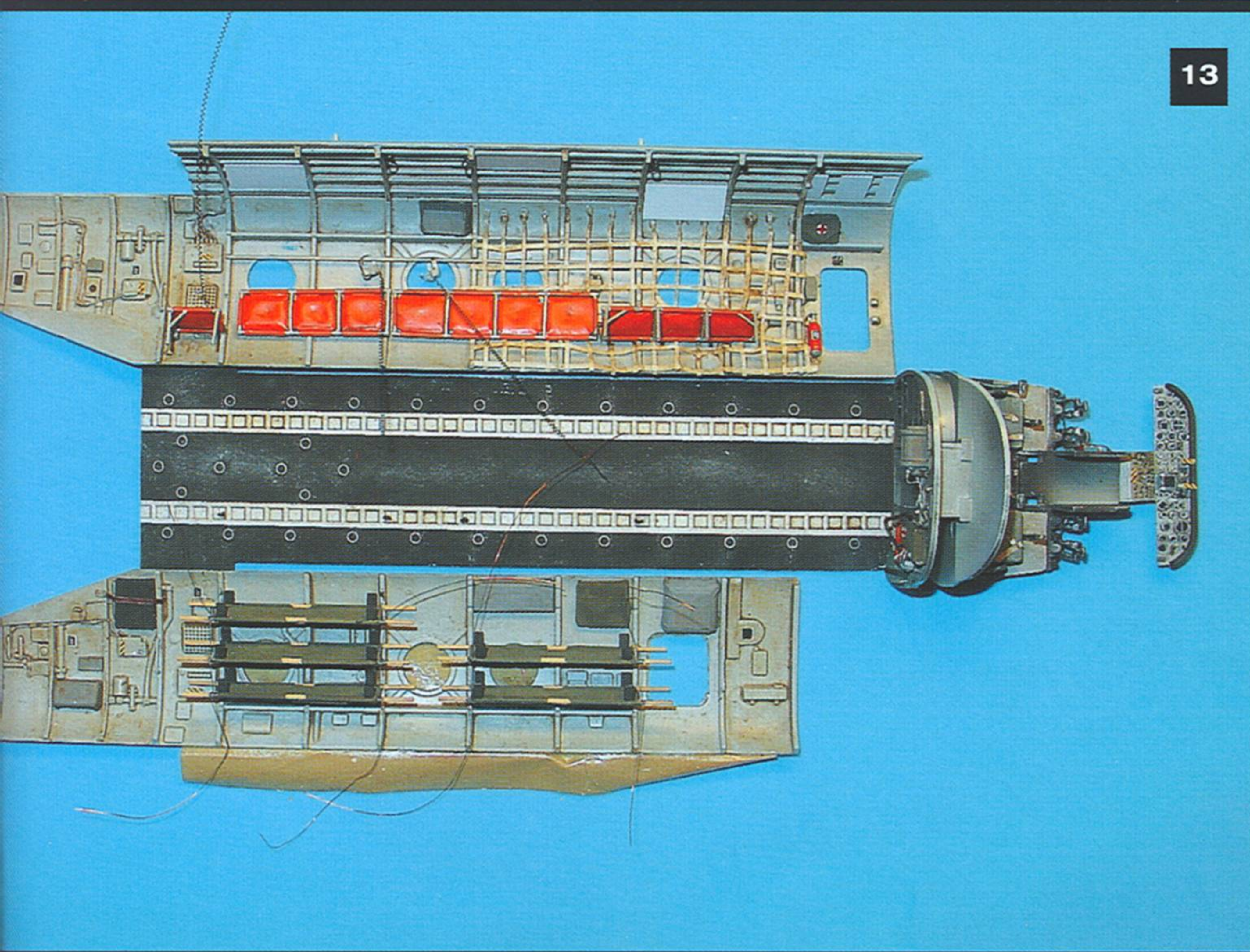
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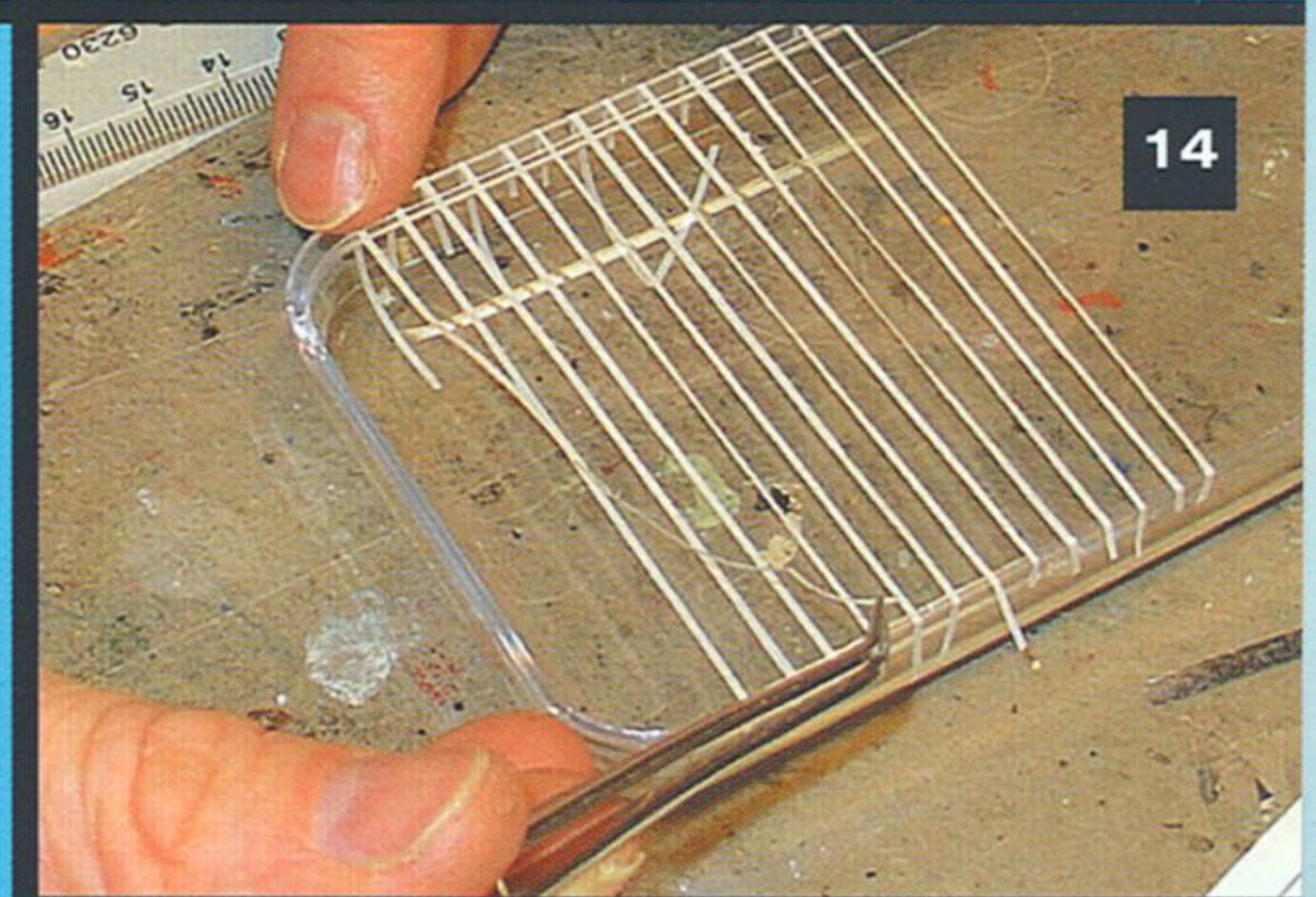
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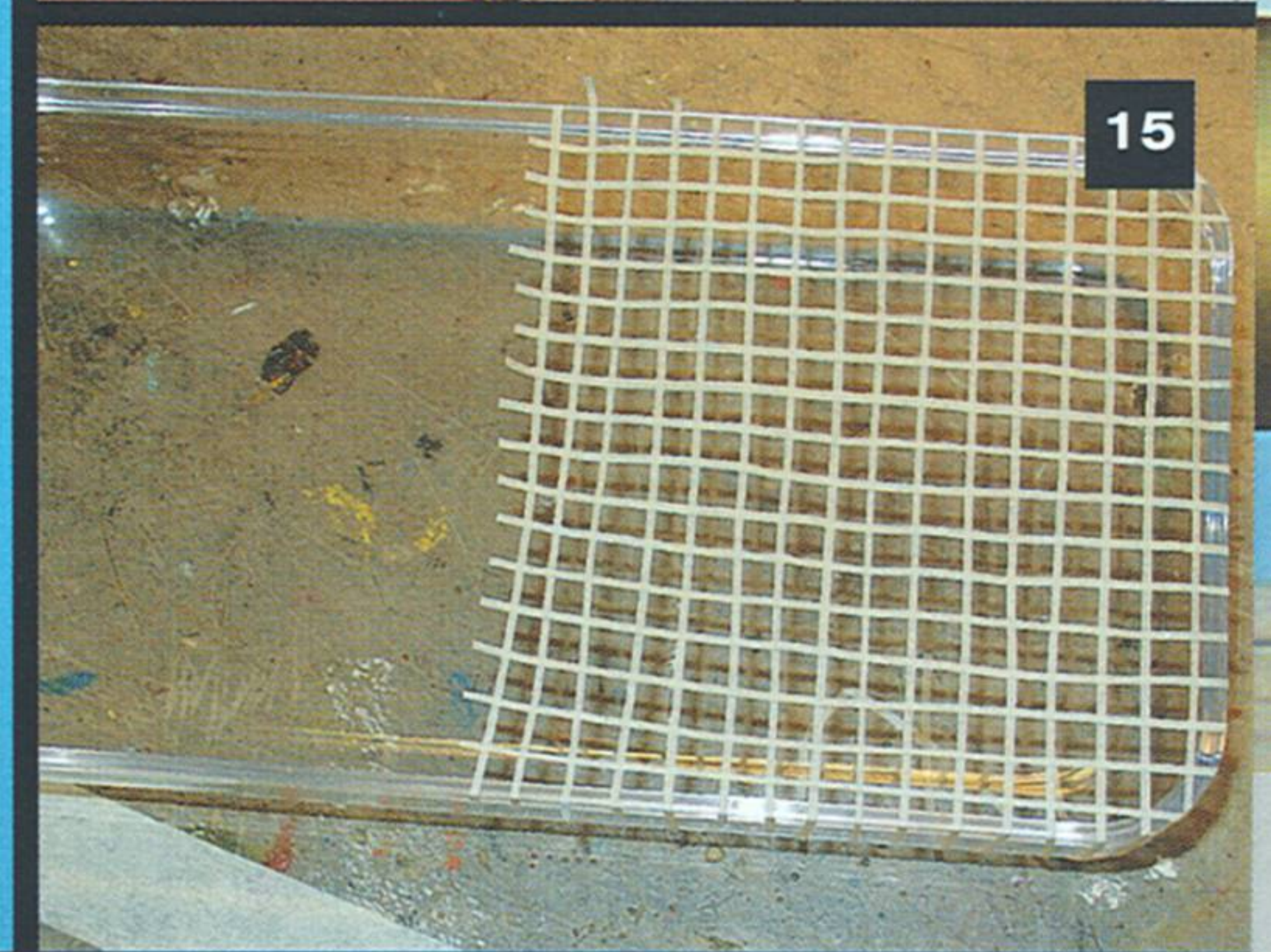
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ground and ceiling for the stretchers, a fire extinguisher, a few head sets and the crew chief's retractable seat, made of the same material as the crew benches. Much to my surprise, this item is not included in the kit, so I scratchbuilt one.

Cockpit and front bulkhead

The cockpit can also do with a little extra attention. There is a nicely moulded instrument panel plus a decal to go along with it, with very finely printed instruments. However, you may experience a little trouble getting the two to work together. Here is how I solved this problem. I punched out all instrument dials with my Waldron Punch & Die set. Then I individually positioned them in their respective bezels, over which I glued clear acetate, which I had punched out to the exact same diameter. **Foto 9.** Seatbelts

were also added. On the real aeroplane, the area beneath the pedals is crammed with wiring and cables. All this is behind bulged windows and is clearly visible. **Fotos 10,11 and 12** Similarly the front bulkhead wall between cockpit and cabin, but the side facing the cabin is the worst as it is located right beside the front doors.

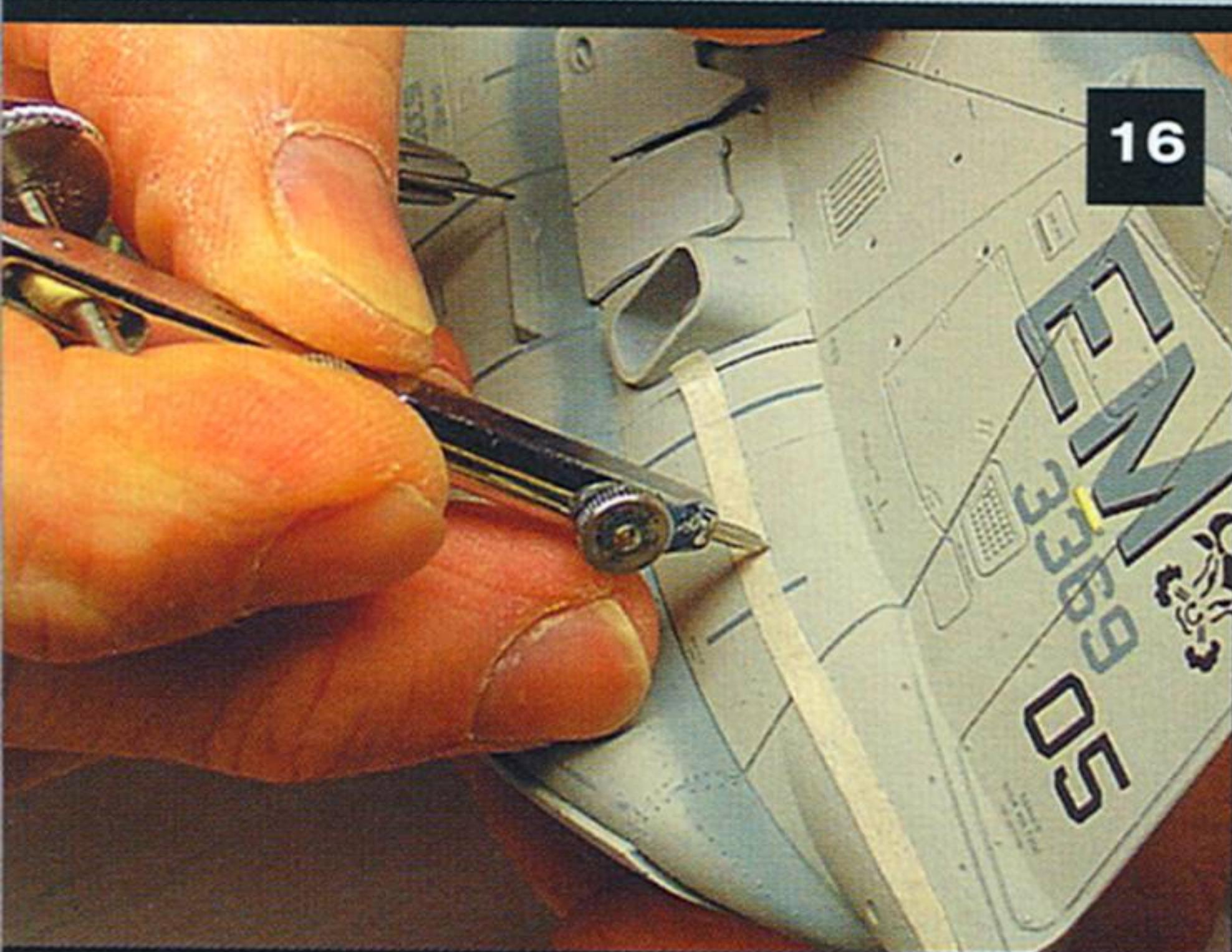
Redefining the exterior surfaces

This is the biggest handicap of the kit. A jet fighter has a smooth surface with all rivets recessed, because of the drag they would cause. This is not the case with a helicopter. A 'Cchopper' travels low and slow and no energy and money is wasted in smoothing down its surface and concealing all the rivets. All rivets are raised on the surface! The surface quality of the model is

inadequate, to put it politely, especially for a kit of this scale. So, I decided to sand it all down and add the characteristic rivet surface detail. Actually, this is simpler than it sounds. I marked the lines with tape and used the little point of a divider to press into the soft plastic surface. **Fotos 16 and 17** Displaced plastic will be raised around the hole in the middle to create the perfect rivet-replica. A little training on some scrap plastic gave me the right idea as to how much pressure to apply - I only had to repeat the step a few thousand times!

Painting and weathering

I used the paint scheme illustrated in the assembly instructions, since it concurred perfectly with my research material. There are lots of great CH-46 pictures on the web and the following link could prove useful -



16



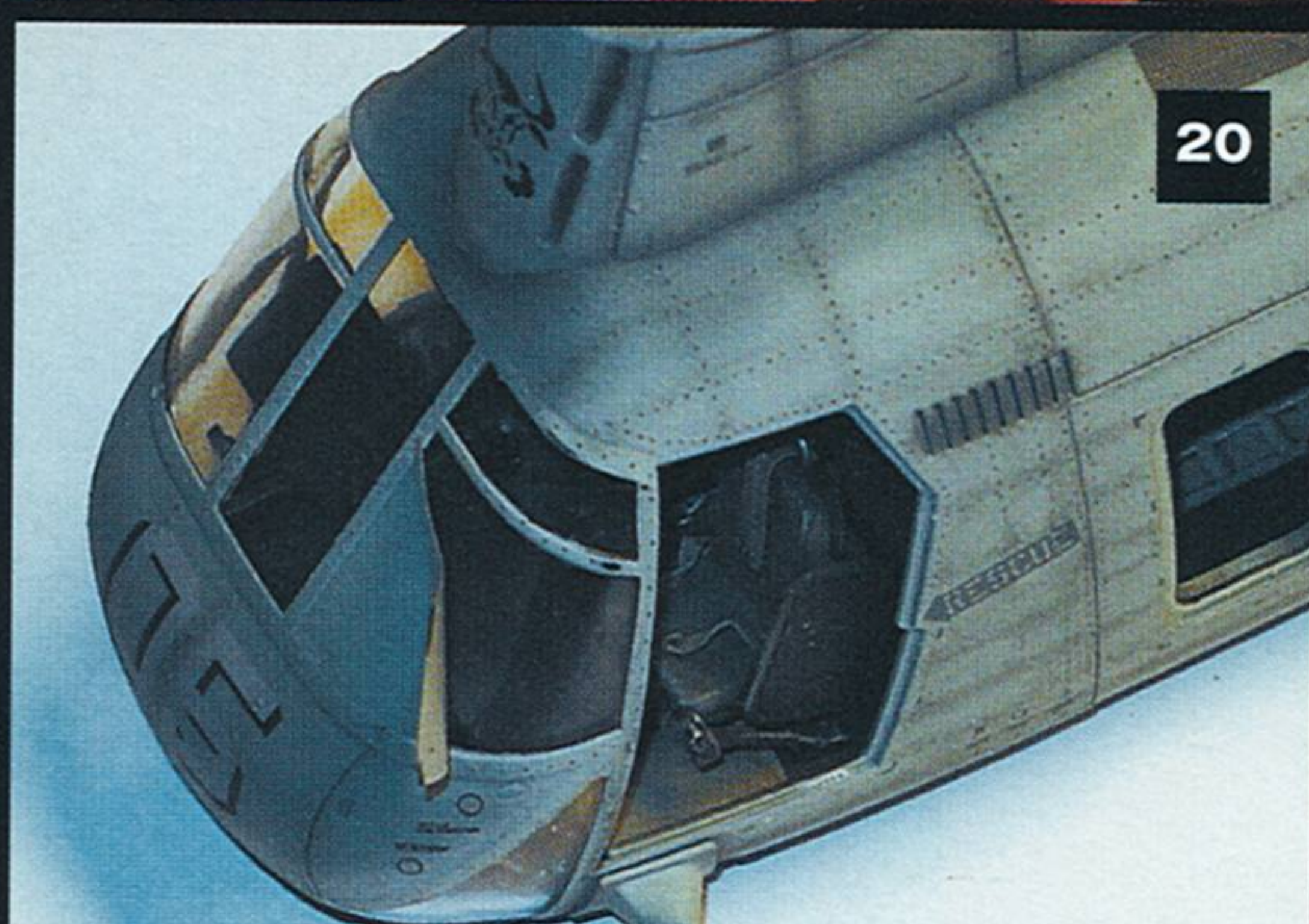
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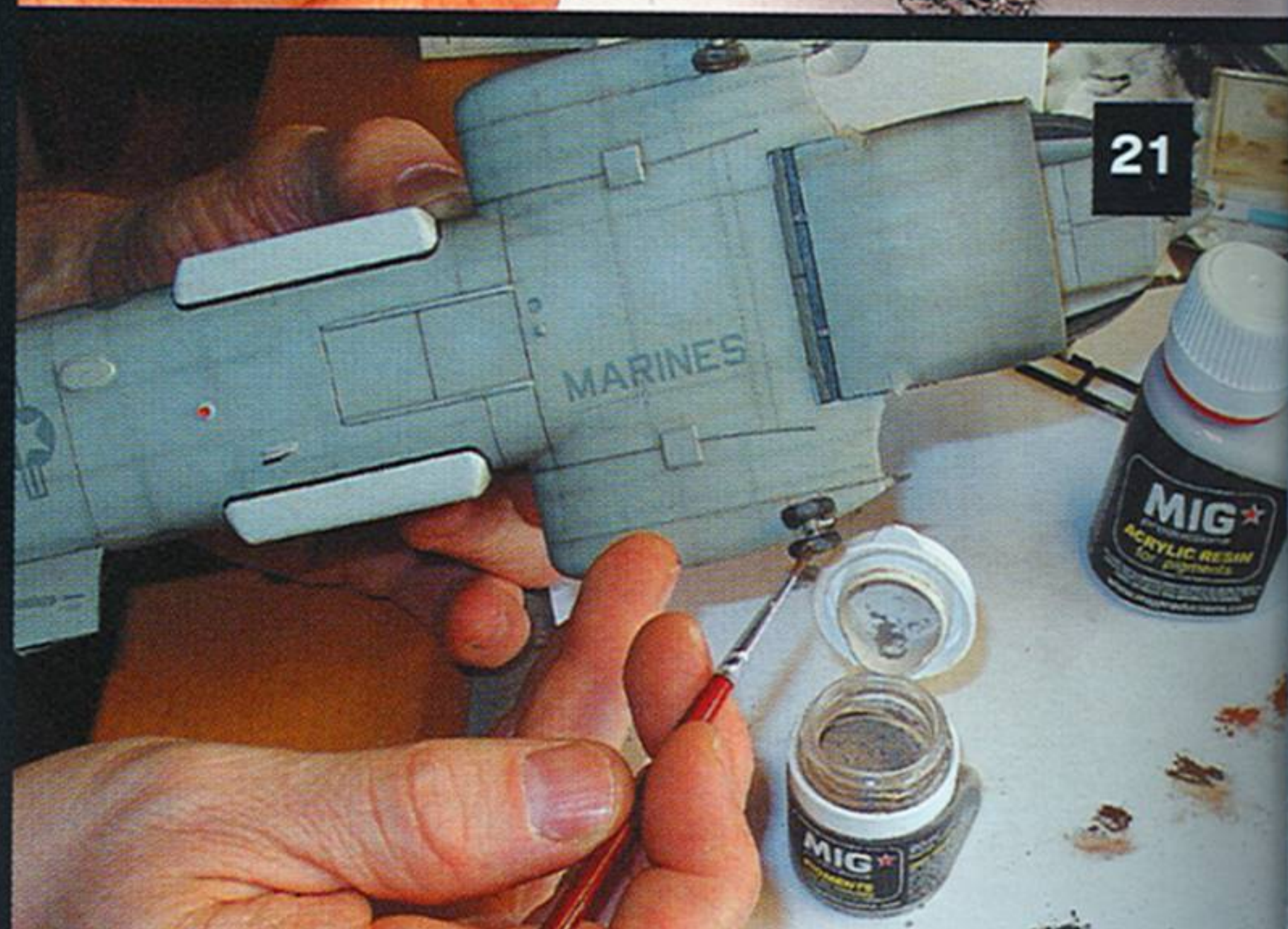
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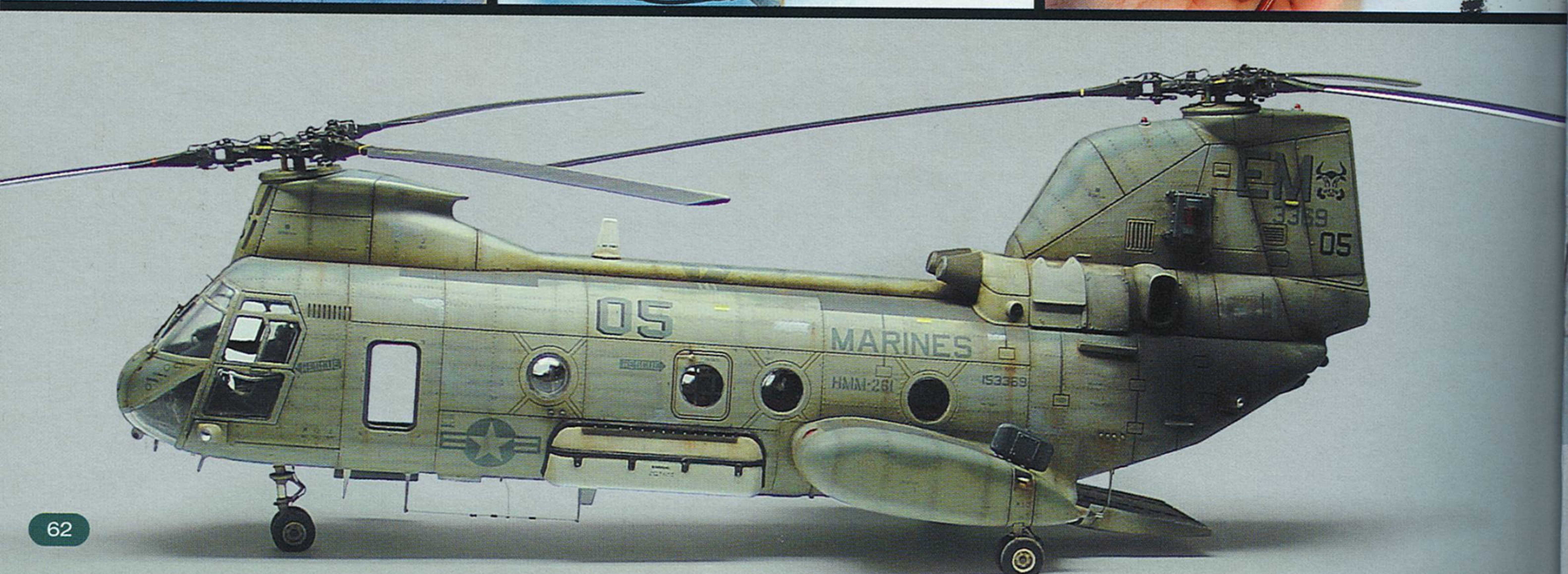
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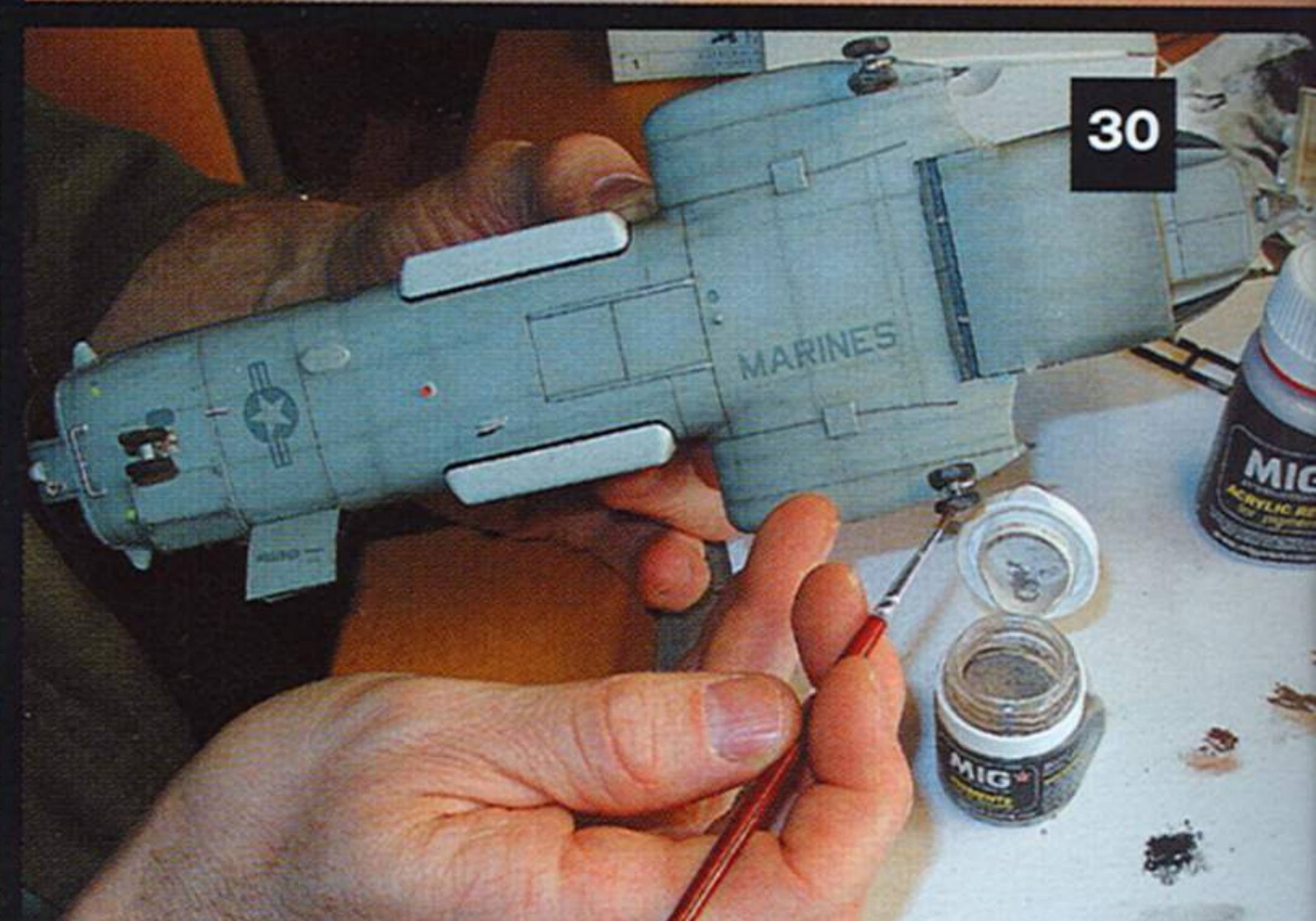
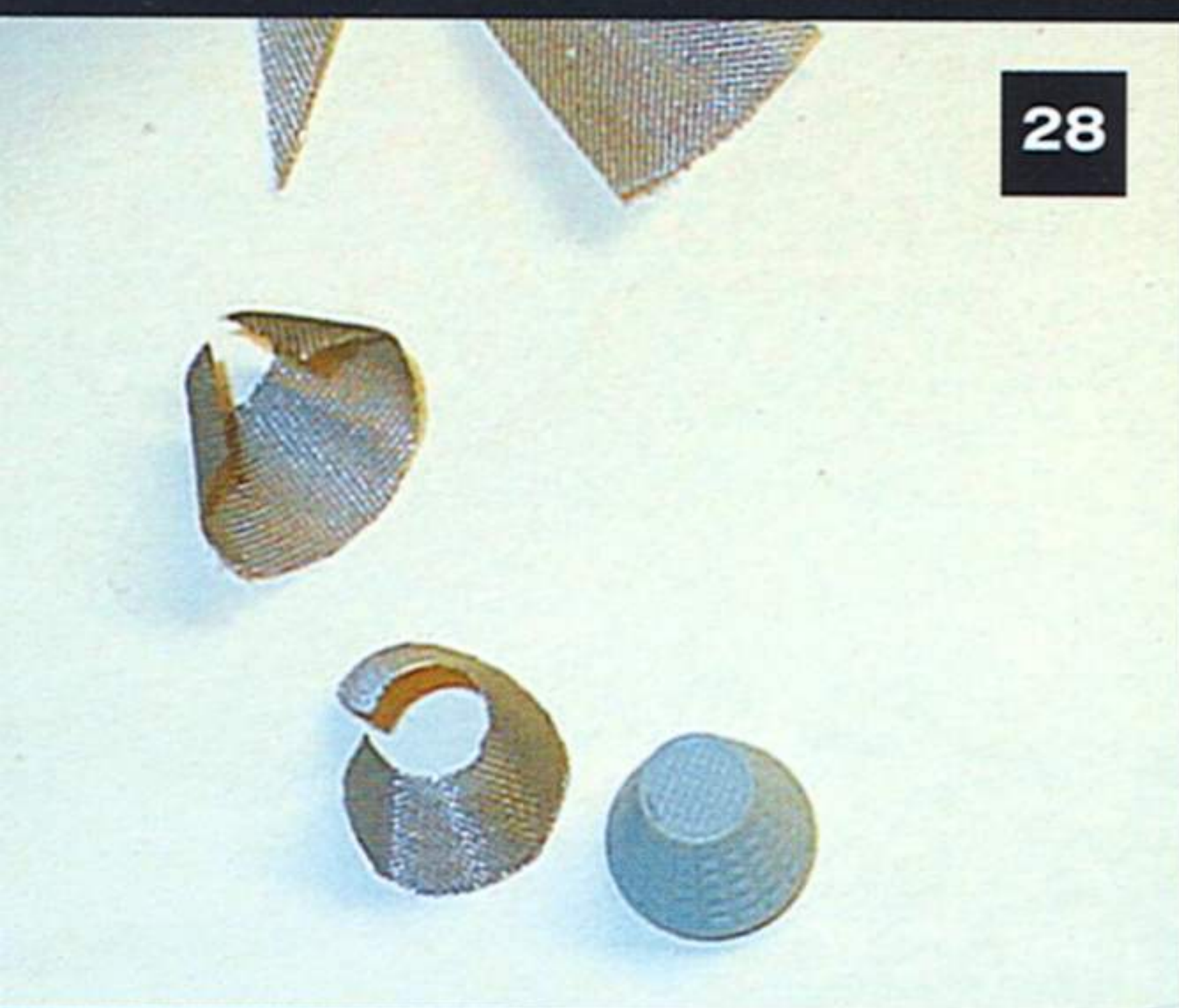
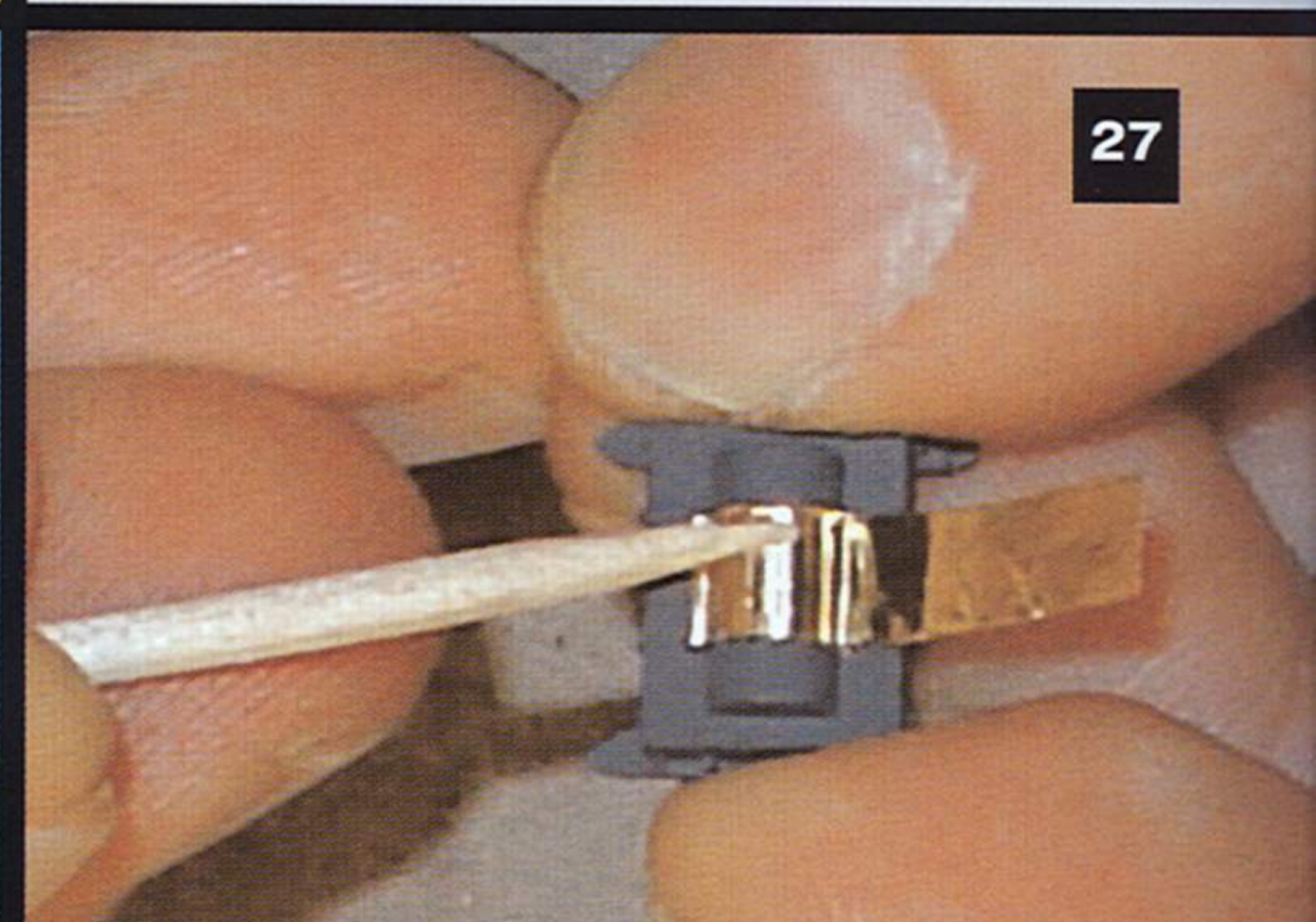
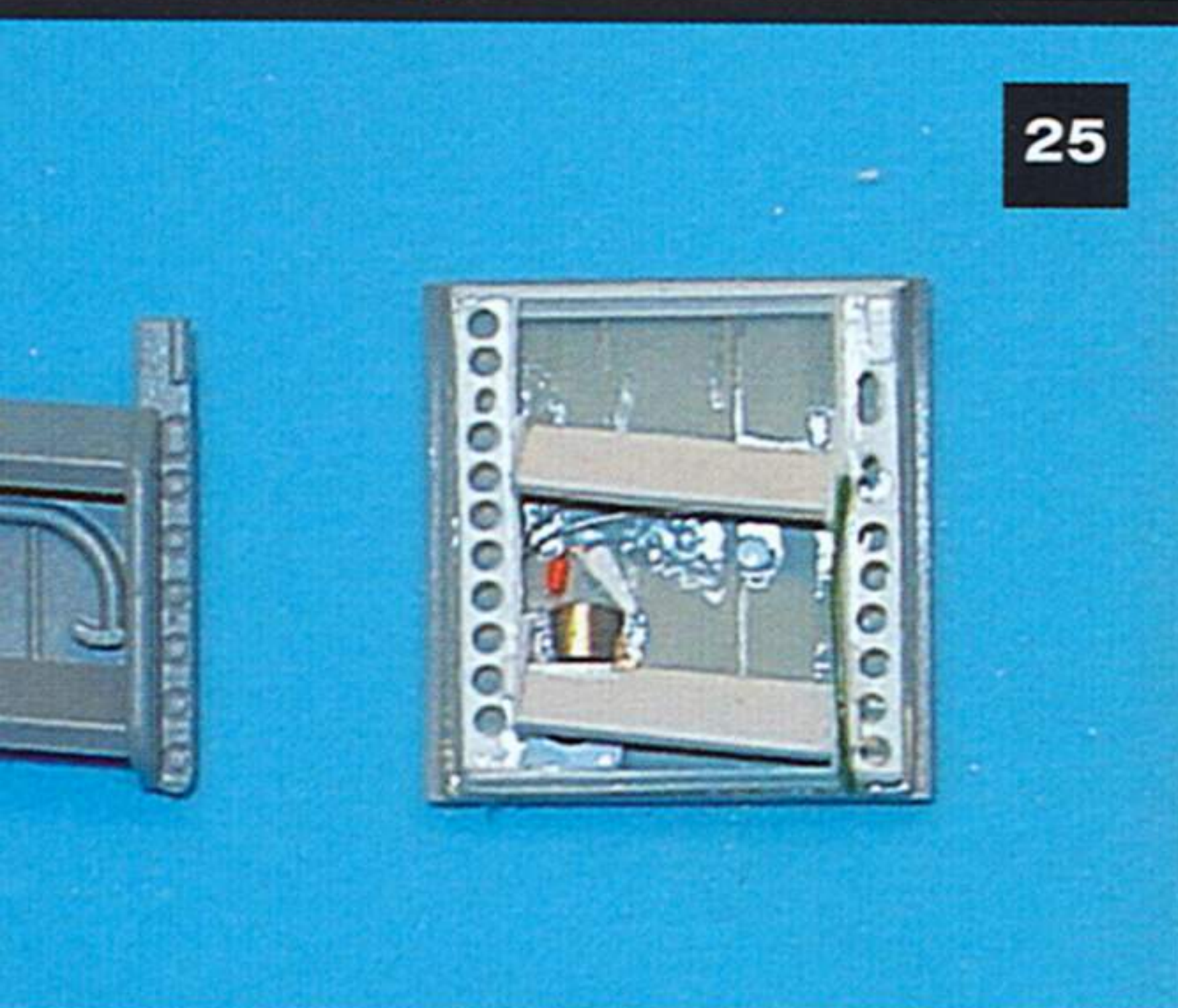
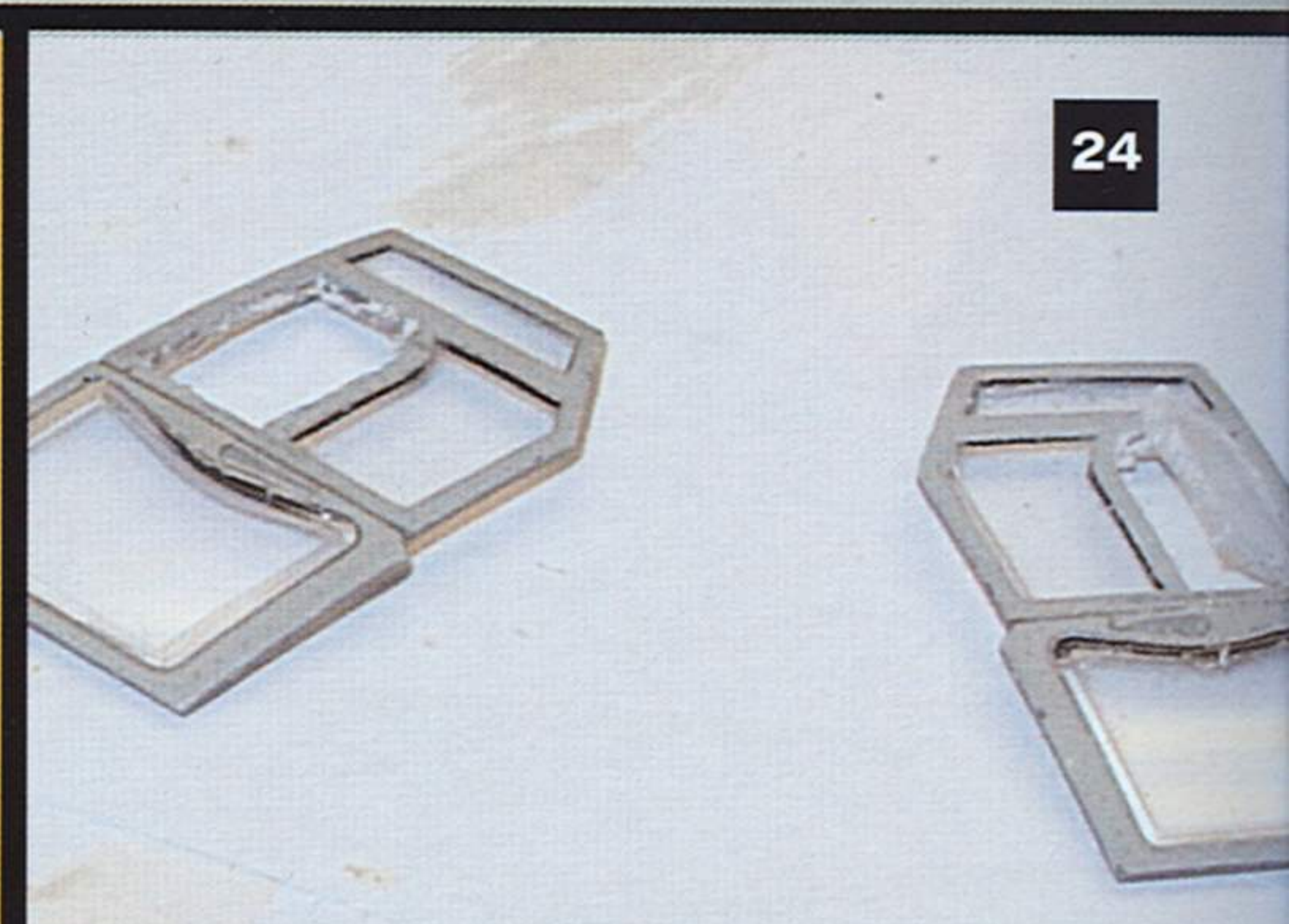
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21







www.airliners.net.

Many of the US Marines's machines are in a pretty weathered and worn condition - just the effect I was looking for. I wanted anyone looking at my model to be almost able to smell the aviation fuel! For the colours I chose Humbrol 147 Matt Light Grey, 127 Satin US Ghost Grey and 27004 Gunmetal.

The weathering process was started with a wash consisting of turpentine and Raw Umber artists oils. The effects were painted on with pastels. **Fotos 18, 19 and 20** I love to work with pastels. You have all the time you want and if the result is not pleasing, you just wipe it off with a soft cloth and have another go. It is more critical with solvent solutions like the turpentine washes. Beside the obvious health hazard it also reacts chemically to the plastic surface and paints. It is best to test this on an unpainted landing gear. After time, the plastic sometimes gets very milky and will break very easily when

handled. Painted surfaces will be softened under such treatment and the paint will become very vulnerable. The trick here is a speedy operation and good ventilation. There is a real danger of ruining a model rather than putting the crown on the creation. Once the desired colours were on the model it just needed to be sealed with a coat of satin varnish.

For the dirt on the tyres I used MIG Productions European Sand **Foto 21** I found this really easy to work with and it produces a very convincing 'dirt' layer. To complete the picture, a few repair paint patches were added from the base grey

Extras

The landing gear's oleo struts looked a little plain so I cut them away and replaced them with parts of a dentist's burr to give a more authentic look. **Foto 22** Most of the on/off boarding is done through the big





front starboard door which is in two segments. The upper part is often removed and the lower part, which is the larger one, contains the stairs and swings down to open. The instruction booklet features some small, but very useful close up shots of the actual door. After carefully studying these, I decided to only keep the actual door and build up a complete new inside. **Fotos 23, 25 & 26** The next item on the list was the hoist. Here as well, there was plenty of room for a little creativity and all the cables were added. The mesh FOD screens are situated right in front of the engine intakes and the kit parts are solid cast pieces. I scratchbuilt replacements from steel netting, **Fotos 28**, which meant I had to scratchbuild some detail in to the engine intake to compensate for the increased

visibility behind the FOD screens in this area. This is where the parts saved from the rotor heads entered service!

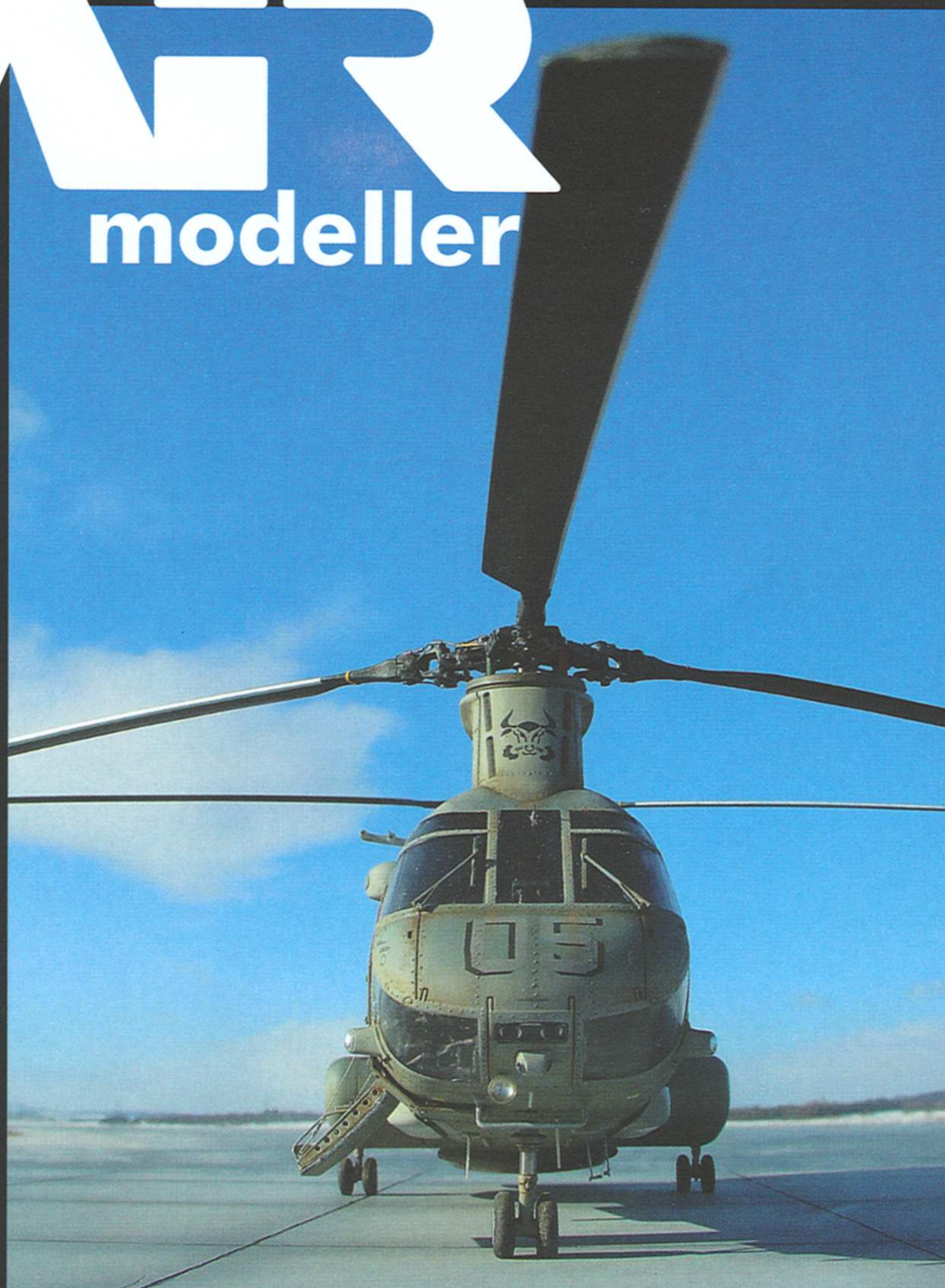
Final touches

The final touches included the addition of the aerals. There are two blade antennas for the spine in the kit which were simply too thick, which I replaced, and another mounted under the belly. The two side-mounted AN/ALQ-157 infra red, surface-to-air missile jammers on the rear pylon, also needed a little attention. First I applied gold foil to the optical part of the device. On top of that I placed simple negative film, trimmed to size. **Foto 27** This produces an interesting effect as well as adding depth to the device.

Next I added a landing light from the LS range. I did not like the windscreen wipers and replaced them with scratchbuilt wipers. **Fotos 29** To enhance the realism even more, I decided to open up the side windows in the cockpit by cutting them out and adding new ones, which were positioned in a 'slid back' position. **Foto 24**

Despite the shortcomings of the kit, Academy have produced a good platform from which to produce a very appealing replica of the 'Frog', which is what the US Marines call their workhorse. It is an easy to build kit for everyone, but the skilled modeller will no doubt find his own way of lifting this unique helicopter model way above average standard, which is exactly what the CH-46 Sea Knight deserves!

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